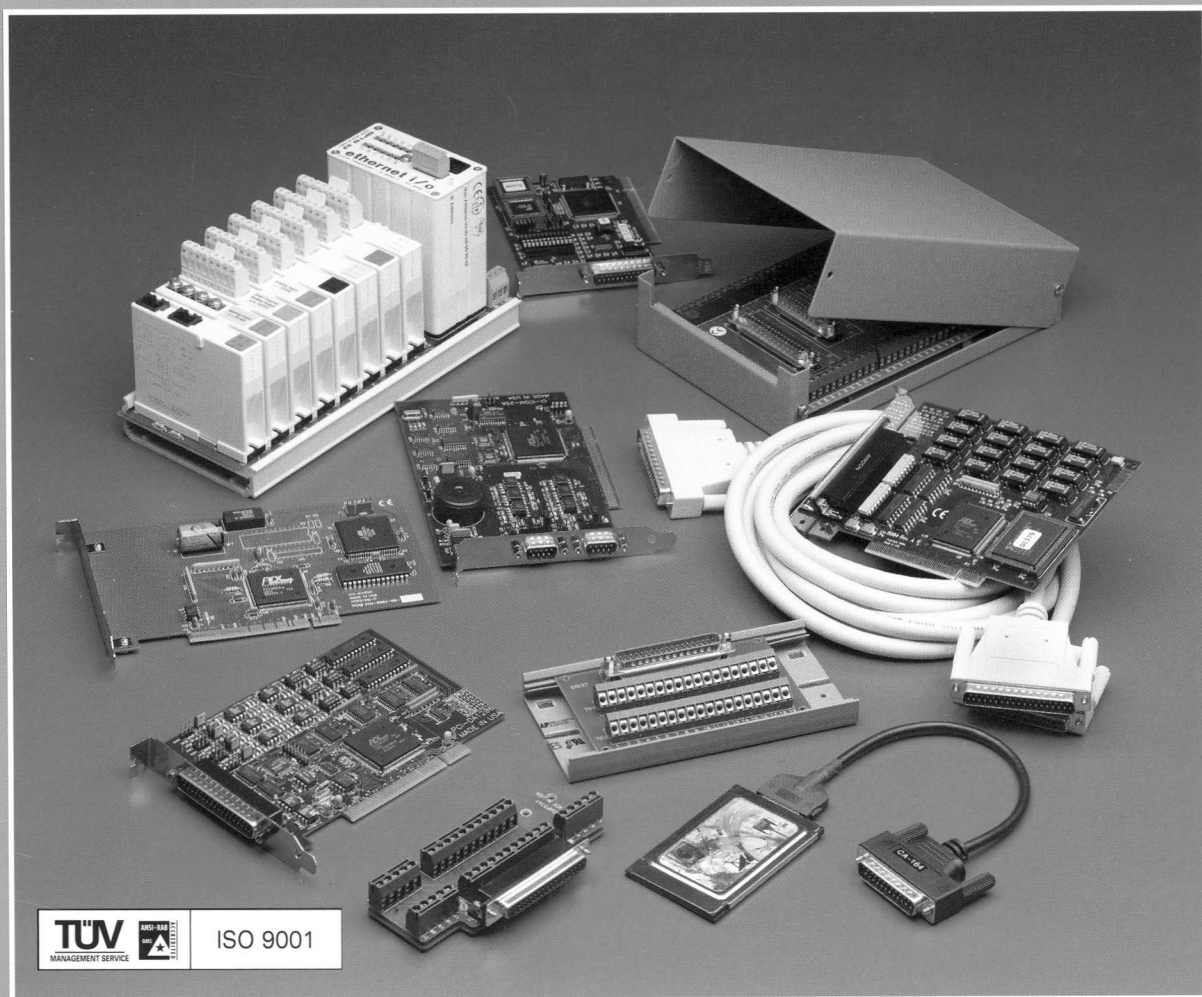




I/O & Communications Source-Book



ISO 9001

Business Critical Applied Computing Solutions

Formerly



INDUSTRIAL COMPUTER SOURCE®

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ICS Advent: Leading From Strength

For over fifteen years, ICS Advent has leveraged solid technical strengths, extensive applications expertise, collaborative customer relationships and innovative product designs to provide industry leadership in the development and deployment of applied computing solutions. Founded in 1985 as Industrial Computer Source, we rapidly earned a reputation as the premiere supplier of industrial computing systems, boards and accessories, combining an unmatched breadth and depth of technologies along with customer-focused support to get the most

out of every one of our product offerings.

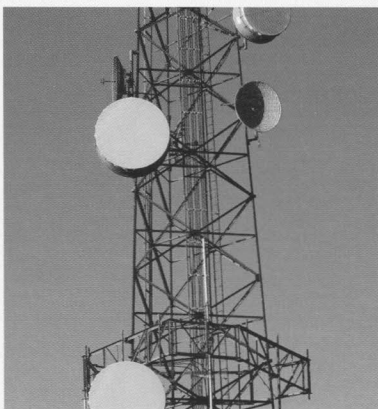
Today, ICS Advent is a leading worldwide one-source partner for advanced computing solutions that provide the underlying foundation for leading edge applications throughout the communications, industrial automation, test and measurement, medical and other technology driven industries. Throughout our history, ICS Advent's growth and success has been built upon our commitment to listening to customers and responding with creative solutions that meet their needs. Whether

your requirements include rack mount computers, integrated systems, single board computers, ruggedized chassis, or custom systems, this catalog can serve as a guidebook for accessing the wealth of possibilities available from ICS Advent. More importantly, as you explore your implementation alternatives, our experienced and highly knowledgeable sales and technical support personnel are ready to help tailor and optimize any of our products to meet your specific application requirements.

At ICS Advent, you get the solution you need. When you need it. From a partner you can rely on. Problem solved. We have created solutions for customers in the following areas. Let us create a solution for you.

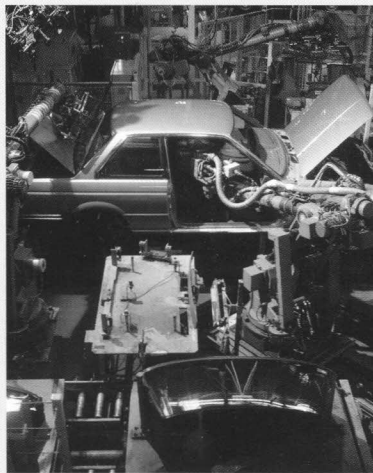
Computer Telephony and Telecommunications

- Automatic call distribution
- Call center
- Fax servers
- Internet servers
- International call back
- IP telephony
- IP telephony fax servers
- One number dialing systems
- Predictive dialing systems
- Switches
- Un-PBX systems



Industrial Automation and Control

- Machine control
- Machine vision
- Motion control
- PLC interface
- Man/machine interface
- Factory automation
- Security systems
- Video broadcast and control



Industrial Test and Measurement

- Data acquisition
- Test stands
- Simulation systems
- Medical monitoring
- Gaming



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Pricing and specifications are subject to change; products are subject to discontinuance.

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Specifying Communication Solutions

ICS Advent has one of the largest selections of communications boards and products in the industry. To assist you in selecting the communication board or product to fit your application need, a series of basic information questions should be asked.

1. What serial standard is needed?
RS-232, RS-422, RS-485, etc.
2. What bus or interface is needed?
ISA, PCI, PCMCIA, Serial, etc.
3. What software is needed or OS used?
Dos, Windows® 98/NT/2000/ME, Linux, etc.
4. How many communication channels are needed?
1, 2, 4, 8, 16 or 32 ports
5. What throughput or Baud rate is needed?
115kbps, 460.8bps, 1Mbps or greater
6. Synchronous or Asynchronous?
Synchronous is used for high speed applications, telemetry, and military; Asynchronous is the standard PC serial ports.
7. Do you have miscellaneous needs such as Isolation, DB25 vs DB9 connectors, intelligence or a particular UART?

After answering these questions, your ICS Advent Sales Engineer can help you select the correct serial communication product for your application.

Serial Electrical/Mechanical Interface Standards

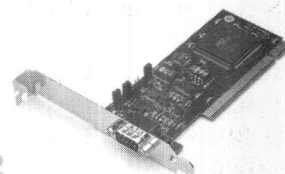
RS-232

The RS-232 is one of the most widely used communication standards and usually comes included with at least two serial ports on standard PC motherboards. This implementation, has been defined and revised several times and is often referred to as RS-232C or EIA-232. The most complete implementation of RS-232 is on a standard 25-pin D-sub connector, although the common PC compatibles define the RS-232 port on a 9-pin D-sub connector with a reduced number of less used control signals deleted. Both the DB25 and DB9 typically come out of the board or computer as a male connector.

The RS-232 typically is used for data rates under 115.2kbps (*Kilobits per second*) and less than 50-feet. The absolute maximum data rate may vary due to line conditions, drivers and cable lengths. Therefore, one would expect only a 20kbps speed at 50-feet.

The voltage levels defined by RS-232 range from -12 to 12V (*Volts*). RS-232 is a single ended interface, meaning a single electrical signal is compared to a common signal (ground) to determine binary logic states. A voltage of 12V (usually 8 to 10V) represents a binary 0 and -12V (-8 to -10V) denotes a binary 1. Since these volts are typically supplied to serial boards from PC power supplies, it is important to check power supply output current capacity of its $\pm 12V$ when using large multiple port serial boards.

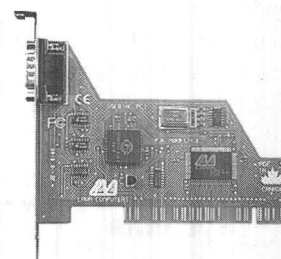
PCI Non-Isolated single port adapter



RS-422

RS-422, unlike RS-232, is a differential interface that defines voltage levels, and driver/receiver electrical specifications. On a differential interface, logic levels are defined by the difference in voltage levels between a pair of outputs or inputs rather than a reference to ground as used by RS-232. Differential interfaces are typically more immune to noise or voltage spikes that may occur on the communication lines. Differential interfaces also have greater drive capabilities that allow for longer cable lengths.

RS-422 is rated up to 10Mbps (*Megabits per second*) and can have cabling 4000 feet long, although not necessarily both specifications at the same time. RS-422 also defines driver and receiver electrical characteristics that can allow 1 driver and up to 10 receivers on the line at once. RS-422 signal levels range from 0 to +5 Volts. RS-422 does not define physical connector although DB9 and DB25 connectors are popularly used.



Single Port PCI RS-232 Interface

RS-485

RS-485 is similar to RS-422 in several ways. RS-485 is a differential interface that allows the same cable lengths and speed as the RS-422. The RS-485 also has the same signal levels of 0 to 5V.

The difference between the two is that RS-485 has electrical characteristics that allow for 32 drivers and 32 receivers to be connected to one line. This interface is ideal for multi-drop or network environments. The RS-485 tri-state driver (not dual-state) will allow the electrical presence of the driver to be removed from the line. The driver is in a tri-state or high impedance condition when this occurs. Only one driver may be active at a time and the other drivers must be tri-stated. The output modem control signal RTS (*Request to Send*) controls the state of the driver. Previously, the control of the RTS were done in software packages but with newer Windows based operating systems, automating the RTS control in hardware or firmware has become popular.

RS-485 can be cabled in two ways: two wire or four wire mode. The two-wire mode does not allow for full duplex communication. It requires data transferred in only one direction at a time and the two transmit pins should be connected to the two receive pins (Tx+ to Rx+ and Tx- to Rx-). The two-wire mode is popular when most of devices are talking to one master serial RS-485 in a computer and not to each other (and less wire is needed for long distances.) The four-wire mode will allow full duplex data transfers.

RS-485 does not define a connector pin-out, a physical connector or a set of modem control signals although DB9 and DB25 connectors are commonly used.

RS-449 and RS-530

RS-449 and RS-530 are similar to RS-422 and RS-485 because they are differential interfaces, but these two standards have specific pin-out and connectors defined. They both define a full set of modem control signals that can be used for regulating flow control and line status. RS-449 is defined on a DB37 and RS-530 is defined on a DB25. The newer RS-530 is backward compatible on signals with RS-449 and becoming more popular since it can be used on serial boards with DB25 that can also have RS-422 and RS-485 capability.

Current Loop

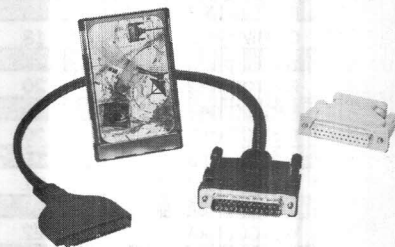
Unlike previous standards, this communication specification is based on the magnitude and direction of the current levels, not voltage levels, over the communication lines. The most common current loop communication circuit based on the concept of a presence or absence of a current path is the $\pm 20\text{mA}$, (i.e. 20mA Current Loop).

Current Loop is a point to point standard with only two current sources, one for transmit and one for receive. The two current sources can be located at either end of the communications lines. To ensure a proper current path to ground, or loop, the cabling of two Current Loop communication ports will depend on distance and location of current sources. Current Loop is used in high noise environments and in the past was normally not used with data rates greater than 19.2K baud due to slow optically isolated circuits. Newer products with faster components have increased this threshold considerably.

Synchronous vs Asynchronous

Asynchronous serial communication is normally used on PC motherboards and standard external computer serial accessories. Asynchronous boards use UARTS such as 16550, 16850, or the Intel® 82510.

Synchronous boards typically use SCC (*Serial Communication Controller*), require a specific protocol to "synch" the data stream and are required for higher speeds. The most popular protocols are SDLC, HDLC & X.25. Others like Bi-sync, Mono-sync, Frame Relay and PPP also used in various industries. Asynchronous serial communications can commonly use the OS serial interface (COM PORT) while Synchronous communications typically need to have specific drivers adapted for specific application and protocols.



**Asynchronous RS-232
type II adapter**

Communication Card Selection Table

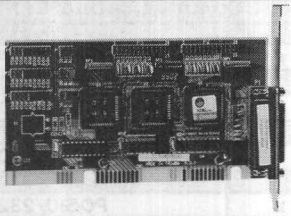
Model	Page #	DS #	Bus (30)	UART	Ports	Interface	Baud Rates
Parallel & PCMCIA Communication Cards							
E3P/AT2	6	-	AT	-	1-3	Parallel	-
FASTCOM/LPT-DP	6	1034	ISA	-	2	Parallel	-
PARALLELPRO	6	1749	AT	-	1	Parallel	-
PARALLELPRO/D	6	1749	AT	-	2	Parallel	-
PCI-2SIP	7	1829	PCI	16550	3	2 RS-232, 1 Parallel	50-115k
PCI-PARALLELPRO	6	1830	PCI	-	1	Parallel	-
PCI-PARALLELPRO/D	6	1830	PCI	-	2	Parallel	-
PC-SIO/232	8	1869	PCMCIA	16550	1	RS-232	50-115k
ULTRAPC-SIO/485	8	1869	PCMCIA	16550	1	RS-422,485,530	50-115k
SPC20	7	1752	ISA	16450	3	2S/1P	50-19.2k
SPC20(H)	7	1751	ISA	16550	3	2S/1P/1G	50-115k
Serial Communication Cards							
CON422	8	1139	Expandable	-	1	RS-422	50-115K
CON485	8	1139	Expandable	-	1	RS-485	50-115K
CONV485/DB9	9	1873	Expandable	-	1	RS-485	Up to 460.8k
Serial Single Port Cards							
FASTCOM422/1ISA	10	1838	AT	16C850	1	RS-422/485	Up to 1.2Mbps
FASTCOMIG232ISA	9	1842	AT	16C850	1	RS-232	Up to 1.2Mbps
FASTCOMIG422ISA	10	1841	AT	16C850	1	RS-422/485	Up to 1.2Mbps
FASTCOMIG422PCI	10	1844	PCI	16C850	1	RS-422/485	Up to 1.2Mbps
I20MA	11	1076	AT	16C550	1	20mA TTY Curr. I.p./RS232	50-256k
PCI-RS232	11	1876	PCI	16550	1	RS-232	50-115K
PCI-RS422	12	1784	PCI	16550	1	RS-422/485	Up to 460.8k
PCI-RS422I	12	1784	PCI	16550	1	RS-422/485	Up to 460.8k
PCI-ULTRA	13	1865	PCI	16850	1	RS-232,422,485,530	Up to 460.8k
RS422AT-PA	12	1875	AT	16550	1	RS-422/485	up to 460.8k
RS422I-PA	12	1870	AT	16550	1	RS-422/485	up to 460.8k
ULTRA-485	12	1152	AT	16550	1	RS-422/485	50-115.2k
COM485/2	18	1455	AT	16550	2	RS-232/422/485	50-115K
ISO-COM485/2	18	1455	AT	16550	2	RS-422/485	50-115K
Serial Dual Port Cards							
COMM232PCI Family	13	1680	PCI	16550-750	2	RS-232	Up to 460.8k
DUAL232/AT	14	1401	AT	16550	2	RS-232	50-56k
FASTCOM2I232ISA	14	1837	AT	16C850	2	RS-232	Up to 1.2Mbps
FASTCOM2I232PCI	14	1840	PCI	16C850	2	RS-232	Up to 1.2Mbps
FASTCOM422/2ISA	17	1839	AT	16C850	2	RS-422/485	Up to 1.2Mbps
FASTCOM422/PCI	17	1831	PCI	16C850	2	RS-422/485	Up to 1.2Mbps
HS-RS232/DP	18	1459	AT	16C650	2	RS-232	Up to 460.8k
PCI-422/485-2I	16		PCI	16550	2	RS-422/485	Up to 460.8k
SPRT2B/AT	15	1067	AT	16550	2	RS-232/422/485	50-256k
UC232PCI/2-55	15	1660	PCI	16550-750	2	RS-232/422/485	Up to 460.8k
ULTRA-485/2	16	1454	AT	16550	2	RS-422/485	50-115.2k
ULTRA-485/2ISO	16	1454	AT	16550-650	2	RS-422/485	50-115.2k
Serial Four Port Cards							
COMM4AT/EX	19	1536	AT	16550	4	RS-232	Up to 460.8k
COMM4PCI/EX-555	18	1681	PCI	16550-750	4	RS-232	Up to 460.8k
FASTCOM232/4ISA	21	1833	AT	16C854	4	RS-232	Up to 1.2Mbps
FASTCOM232/4PCI	20	1834	PCI	16C854	4	RS-232	Up to 1.2Mbps
FASTCOM422/4ISA	20	1832	AT	16C854	4	RS-422/485	Up to 1.2Mbps
FASTCOM422/4PCI	20	1843	PCI	16C854	4	RS-422/485	Up to 1.2Mbps
PCI-COM422&485/4	19	1737	PCI	16550	4	RS-422&485	Up to 460.8k
UC422PCI/4-55	21	1679	PCI	16550-750	4	RS-422/485	Up to 460.8k
UCOMM422/4A	21	1584	AT	16550-750	4	RS-422/485	Up to 460.8k
WINCOMM4	22	1070	AT	16C550	4	RS-232	50-56k
Serial Mult-Port Cards							
COM485/8	24	1877	AT	16550	8	RS-485	Up to 460.8k
FASTCOM232/8ISA	23	1835	AT	16C854	8	RS-232	Up to 1.2Mbps
FASTCOM232/8PCI	23	1836	PCI	16C854	8	RS-232	Up to 1.2Mbps
PCI-COM422&485/8	24	1736	PCI	16550	8	RS-422&485	Up to 460.8k
ROCKETPORT Family	25	1100	AT	Custom	4,8,16,32	RS-232/422	50-230k
ROCKETPORT/485	26	1655	ISA	Custom	8	RS-232/485	50-460.8k
WINCOMM8/C	22	1732	AT	16554	8	RS-232	Up to 460.8k
WINCOMM8/PCI-55	22	1733	PCI	16554	8	RS-232	Up to 460.8k
Sync Communication Cards							
ACB2/EX	26	1084	AT	85230	1	RS-422/232	50-1.2M
ACB3	26	1030	ISA	85230	2	RS-232	50-1.2M
ACB4	27	1029	ISA	85230	2	RS-422/485/530	50-1.2M
ACB4-AT	27	1028	AT	85230	2	RS-232/v.35	50-1.2M
ACB56	26	1332	AT	85230	2	RS-232/v.35	50-1.2M
FASTCOM/ESCC	27	1493	AT	82532	2	RS-422/485/530	To 4M/10Mbps
FASTCOMESCC/P	27	1608	PCI	82532	2	RS-422/485/530	To 10M bits/sec

Communication Card Selection Table

Protocol	Interrupts	Isolation	MS-Dos	WIN 95/98	WIN NT	WIN 2000	LINUX	UTILITIES	Model
Parallel & PCMCIA Communication Cards									
-	AT 1 of 9	-	X	X	X	-	-	-	E3P/AT2
-	XT 1 of 6	-	X	-	-	-	-	X	FASTCOM/LPT-DP
-	AT 1 of 9	-	X	X	X	-	-	-	PARALLELPRO
-	AT 1 of 9	-	X	X	X	-	-	-	PARALLELPRO/D
async	PCI	-	-	X	X	X	-	-	PCI-2SIP
-	PCI	-	-	X	X	X	-	-	PCI-PARALLELPRO
-	PCI	-	-	X	X	X	-	-	PCI-PARALLELPRO/D
async	AT 1 of 9	-	X	X	X	X	-	X	PC-SIO/232
async	AT 1 of 9	-	X	X	X	X	-	X	ULTRAPC-SIO/485
async	XT 1 of 4	-	X	X	X	-	-	X	SPC20
async	XT 1 of 4	-	X	X	X	-	-	X	SPC20(H)
Serial Communication Cards									
async	-	-	X	X	X	X	-	-	CON422
async	-	-	X	X	X	X	-	-	CON485
async	-	-	X	X	X	X	-	-	CONV/DB9
Serial Single Port Cards									
async	AT 1 of 10	-	X	X	X	X	-	X	FASTCOM422/1ISA
async	AT 1 of 10	X	X	X	X	X	-	X	FASTCOMIG232ISA
async	AT 1 of 10	X	X	X	X	X	-	X	FASTCOMIG422ISA
async	PCI	X	X	X	X	X	-	X	FASTCOMIG422PCI
async	AT 1 of 10	X	X	X	X	X	-	X	I20MA
async	PCI	-	X	X	X	X	-	-	PCI-RS232
async	PCI	-	-	X	X	X	-	X	PCI-RS422
async	PCI	X	X	X	X	X	-	X	PCI-RS422I
async	PCI	-	X	X	X	X	X	X	PCI-ULTRA
async	AT 1 of 10	-	X	X	X	X	-	X	RS422AT-PA
async	AT 1 of 10	X	X	X	X	X	-	X	RS422I-PA
async	AT 1 of 10	-	X	X	X	X	X	X	ULTRA-485
async	AT 1 of 10	-	X	X	X	X	-	X	COM485/2
async	AT 1 of 10	X	X	X	X	X	-	X	ISO-COM485/2
Serial Dual Port Cards									
async	PCI	-	X	X	X	X	X	X	COMM232PCI Family
async	AT 1 of 9	-	X	X	X	X	X	X	DUAL232/AT
async	AT 1 of 10	X	X	X	X	X	-	X	FASTCOM21232ISA
async	PCI	X	X	X	X	X	-	X	FASTCOM21232PCI
async	AT 1 of 10	-	X	X	X	X	-	X	FASTCOM422/2ISA
async	PCI	-	X	X	X	X	-	X	FASTCOM422/PCI
async	AT 1 OF 8	-	X	X	X	X	-	X	HS-RS232/DP
async	PCI	X	X	X	X	X	-	X	PCI-422/485-2I
async	AT 1 of 9	-	X	X	X	X	-	X	SPRT2B/AT
async	PCI	-	X	X	X	X	X	X	UC232PCI/2-55
async	AT 1 of 10	-	X	X	X	X	X	X	ULTRA-485/2
async	AT 1 of 10	X	X	X	X	X	X	X	ULTRA-485/2ISO
Serial Four Port Cards									
async	AT 1 of 9	-	X	X	X	X	X	X	COMM4AT/EX
async	PCI	-	X	X	X	X	X	X	COMM4PCI/EX-555
async	AT 1 of 10	-	X	X	X	X	-	X	FASTCOM232/4ISA
async	PCI	-	X	X	X	X	-	X	FASTCOM232/4PCI
async	AT 1 of 10	-	X	X	X	X	-	X	FASTCOM422/4ISA
async	PCI	-	X	X	X	X	-	X	FASTCOM422/4PCI
async	PCI	X	X	X	X	X	-	X	PCI-COM422&485/4
async	PCI	-	X	X	X	X	X	X	UC422PCI/4-55
async	AT 1 of 10	-	X	X	X	X	-	X	UCOMM422/4A
async	AT 1 of 9	-	X	X	X	X	-	X	WINCOMM4
Serial Multt-Port Cards									
async	-	-	X	X	X	-	X	X	COM485/8
async	AT 1 of 10	-	X	X	X	X	-	X	FASTCOM232/8ISA
async	PCI	-	X	X	X	X	-	X	FASTCOM232/8PCI
async	PCI	-	X	X	X	-	-	X	PCI-COM422&485/8
async	AT 1 of 8/PCI	-	X	X	X	X	X	X	ROCKETPORT Family
async	AT 1 of 8	-	X	X	X	X	X	X	ROCKETPORT/485
async	AT 1 of 10	-	X	X	X	X	-	X	WINCOMM8/C
async	PCI	-	X	X	X	-	X	X	WINCOMM8/PCI-55
Sync Communication Cards									
sync/async	-	-	X	X	X	-	-	X	ACB2/EX
sync/async	-	-	X	X	X	-	-	X	ACB3
sync/async	-	-	X	X	X	-	-	X	ACB4
sync/async	-	-	X	X	X	-	-	X	ACB4-AT
sync/async	-	-	X	X	X	-	-	X	ACB56
async/async	-	-	X	X	X	X	X	X	FASTCOM/ESCC
async/sync	-	-	X	X	X	X	X	X	FASTCOMESCC/P

Communications

Parallel Port Adapter



E3P/AT2

- One bi-directional parallel port
- Expandable to three ports with optional channels
- 83-byte FIFO buffer
- Conforms to IEEE 1284-1994 ECP/EPP

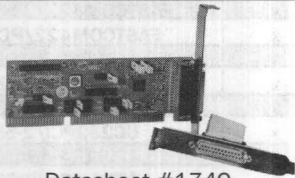
Specifications

Bus	Connectors
ISA	DB25 female
I/O Addressing	Certification
3BC 268	FCC Class B
378 280	OS Support
278 288	Dos
Interrupts	Windows® 3.1/95/98/NT
3-5 9-12	
7 15	

Ordering Guide

E3P/AT2	\$59
Parallel adapter w/one to three ports & manual	
E3P/AC	\$29
One additional channel w/cable & bracket	

Dual Port ECP/EPP Parallel Cards



Datasheet #1749

PARALLELPRO/D

- Conforms to IEEE 1284 standard 1-port version
- Supports high speed printers, scanners and tape backup drives
- ECP/EPP, bi-directional, (BPP) and standard parallel port (SPP)

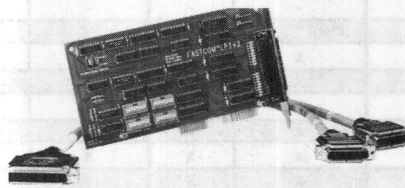
Specifications

Bus	Connectors
ISA	DB25 female
I/O Addressing	Certification
PARALLELPRO: 378h, 278h	FCC Class B
PARALLELPRO/D: 3BC, 378h, 278h, 268h, 280h, & 288h	OS Support
	Dos, Windows
Interrupts	3.1x/95/98/NT
PARALLELPRO: IRQ 5, 7	
PARALLELPRO/D: IRQ 3-5, 7, 9-12, 15	

Ordering Guide

PARALLELPRO/D	\$69
2-port ECP/EPP parallel card & manual	
PARALLELPRO	\$49
1-port card & manual	

Dual Port High Power Parallel Card



Datasheet #1034



FASTCOM/LPT-DP

- Two completely independent, fully bi-directional, parallel ports
- Up to ten cards in a system using shared interrupts
- Cable lengths up to 150-feet for each printer

The FASTCOM/LPT-DP is a two channel, fully bi-directional, parallel printer adapter for the IBM PC/XT/AT and 386/486 compatibles. With the FASTCOM/LPT-DP, your system is not limited to three printer ports or by short printer cables. The FASTCOM/LPT-DP allows you to install up to 20 printer ports with cable lengths up to 150-feet for each channel.

Applications for the FASTCOM/LPT-DP include Commercial and Industrial systems, Print Servers, Lab Equipment, Industrial Controls, and Test Systems.

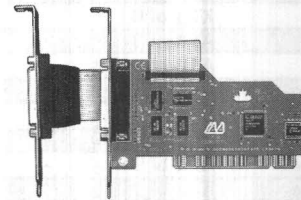
Specifications

Bus
ISA
I/O Addressing
0-FCH
Interrupts
IRQ 2-7, shared
Connectors
Two Centronics
DB25 female
Operating Temperature
0 ° to 70 °C
Storage Temperature
-20 ° to 70 °C
Humidity
0 to 90% (non condensing)
Power Requirements
5V @ 600mA
Certification
CE marked
OS Support
Dos support up to 10-ports
Standard LPT
Support for Windows NT

Ordering Guide

FASTCOM/LPT-DP	\$195
Dual port high power parallel card, manual & software	

PCI Single Port High Speed Parallel Card



Datasheet #1830



PCI-PARALLEL/D

- PCI specification 2.1 compliant
- 100% compatible w/any standard parallel port device
- Auto IRQ & PCI I/O address selection
- Windows 98/NT/2000 support
- Compatible w/legacy peripherals (e.g. Zip drives)
- Configurable for standard ISA parallel port address (0278 & 0378)
- 3X faster than standard ISA LPT ports

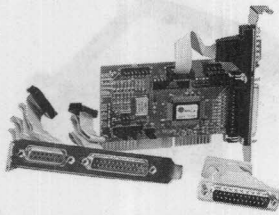
The PCI-PARALLEL and PCI-PARALLEL/D PCI cards have a custom chipset that provides unmatched performance capable of data throughput rates up to three times faster than standard ISA or motherboard parallel ports, unlike other PCI parallel cards.

Specifications

Bus	Humidity
PCI	90% at STP
I/O Addressing	Certification
Plug-n-Play Auto selection or manually changing default to ISA LPT addresses (0278h or 0378h)	FCC compliant
	CE marked
OS Support	Windows 95/98/NT/2000
Interrupts	
Auto selects 1 interrupt per card on PCI	
Connectors	
Standard 25-pin EPP port	
Second port comes with cable and bracket for adjacent slot	
Operating Temperature	
0 ° to 70 °C	

Ordering Guide

PCI-PARALLEL/D	\$69
PCI dual port EPP high speed parallel card, manual, external cable & bracket for second LPT port	
PCI-PARALLEL	\$49
PCI single port high speed parallel card, & manual	

**2 Serial, 1 Parallel
Communication Card**

Datasheet #1751 & #1752

SPC20 & SPC20/H

- Two (RS-232) compatible serial ports
- PC compatible
- COM1 through COM4 supported
- LPT1, LPT2

The Model SPC20 is a powerful add-on board that can greatly expand the I/O capabilities of your computer. With the SPC20, you can add a mouse, modem, plotter, printer, joystick or other peripheral equipment to your system. Up to two SPC20 cards can be added to further expand your computing capabilities.

Specifications**Bus**

ISA

Connectors

One DB9 male, one DB25 male, one DB25 female
(SPC20 only - one DB15 female)

UART

SPC20/H

Type 16450

SPC20

Type 16550

I/O Addressing

SPC20/H

Serial port 1: COM1 (3F8h), COM3 (3E8h)

Serial port 2: COM2 (2F8h), COM4 (2E8h)

Parallel port: 378h, & 278h

SPC20

Serial port 1: COM1 (3F8h), COM3 (3E8h), & COM4 (2E8h)

Serial port 2: COM2 (2F8h), COM3 (3E8h), & COM4 (2E8h)

Parallel port: 378h, 3BCh, & 278h

Interrupts

Serial port 1: IRQ 3, 4, 5, & 9

Serial port 2: IRQ 3, 4, 5, & 9

Parallel port: 5, & 7

Modes

SPC20

EPP, EPP/ECP, or SPP

DMA

SPC 20

Channels 1 & 3

OS Support

Dos/Windows 3.x

Windows 95/98/NT & other major operating systems

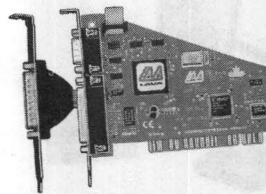
Ordering Guide

SPC20 \$59

Two serial, one parallel communication card

SPC20/H \$69

16550 version, manual & cable/bracket

**PCI 2 Serial 16550 High Speed
Parallel Card**

Datasheet #1829

**PCI-2S1P**

- Two RS-232 16550 UART serial ports (one 9-pin on board & one 25-pin w/bracket)
- Maximum data rate on each port: 115.2kbps
- Three times faster LPT port than either standard ISA or MB EPP parallel ports
- 100% compatible LPT port with any parallel port device
- PCI specification 2.1 compliant
- Auto IRQ & PCI I/O address selection
- Windows 98/NT/2000 support

Unlike other PCI combo cards, the Model PCI-2S1P, has its own custom chipset for the LPT port that provides unmatched performance capable of data throughput rates up to three times faster than a standard ISA or motherboard parallel port.

Specifications**Bus**

PCI

UART

Type 16550 serial

Throughput

Serial

Maximum 115.2kbps

Parallel

3 times standard

ISA LPT port

I/O Addressing

Plug-n-Play Auto selection or manually changing default to ISA LPT addresses (0278h or 0378h)

Interrupts

Auto selects 1 interrupt per card on PCI

Connectors

One DB9 male RS-232 serial port and one standard Centronics-compatible DB25

female EPP parallel

port mounted on board. Second RS-232 serial port is DB25 male with cable & bracket for adjacent slot.

Operating Temperature

0 ° to 70 °C

Humidity

90% at STP

Certification

FCC compliant

CE marked

OS Support

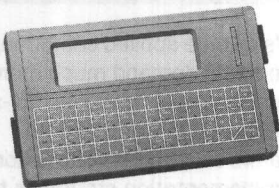
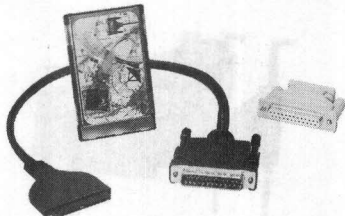
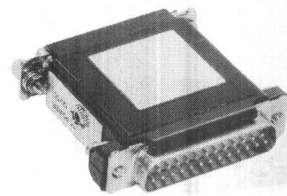

Windows 95/98/NT/2000

**A Full Range
of Computing Platforms**

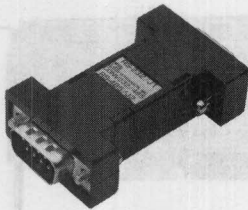
Today's diverse applied computing requirements demand much more than just a simple "one-size-fits-all" philosophy. OEM's and system integrators must be able to tailor their implementation strategies to meet an increasingly difficult blend of critical factors, such as performance, size, cost, power usage, expendability, ruggedization, maintainability, reliability, etc. With escalating price/performance requirements, increasing competitive pressures and shrinking time-to-market windows, the need for "tailored-fit" product alternatives is becoming even more critical every day.

Building upon our extensive experience in developing powerful standards-based applied computing platforms and our catalog of thousands of PC-related products, ICS Advent offers an unparalleled set of implementation choices to meet virtually any application requirement. With highly configurable rack mount solutions ranging from 1U to 6U form factors, as well as a rich set of powerful single board computer alternatives, ICS Advent can deliver targeted off-the-shelf solutions for most application needs or can rapidly configure full custom systems if required. So whether your specific business objectives demand an optimized solution for a single targeted application or a family of configurable solutions to span multiple price/performance requirements, ICS Advent offers both the platform flexibility and the support commitment to ensure a perfect fit.

Configure your system online at
www.icsadvent.com or
call one of our sales engineers
for assistance to order your system
888-294-4561

Serial Communications Exerciser/Analyzer	Asynchronous RS-232 & RS-530/422/485 Type II Adapters	RS-232/422/485 Converts																																										
																																												
Datasheet #1376	Datasheet #1869 	Datasheet #1139																																										
DLM200	PC-SIO/232-485	CON485																																										
<ul style="list-style-type: none">Observe flow of transmitted and received data real timeMonitor protocolsStore and examine data characters in any formatPerform timed bit error rate testingStart and stop capture on string or interface triggers	<ul style="list-style-type: none">"Hot-swapping" auto configurationSingle port Asynchronous RS530/422/485 or RS-23216550 UARTDos client software enabler includedFull modem control signals (RS-232 Model)Auto RTS (RS-485 model)DB25P connector (EIA-530 on ULTRAPC-SIO/485)Windows 95/98/NT/2000 support	<ul style="list-style-type: none">Plugs directly onto serial portMiniature sizeVery low costNo separate power supply required (If +12VDC is not available on the connector, the model CONPS is required)																																										
<p>The Model DLM200 is a versatile, intelligent data line monitor/analyzer. This tester does what big heavy test equipment does for less money in a smaller package. You can easily see exactly what each computer device is transmitting right on an eight line display. You can see the characters flowing in either direction along with interface signals. Up to 40,000 characters in both directions.</p>	<p>The PC-SIO Series cards provide a single PCMCIA asynchronous serial link to modems, terminals, printers or data collection equipment. Simply plug the PC-SIO card into a PC-Card drive slot and the card is transparently configured by the system. Take advantage of the noise resistant RS-530/422/485 line to connect your notebook via the ULTRAPC-SIO/485, or utilize RS-232 communications to connect to a wide variety of peripherals with the PC-SIO/232. The PC-SIO cards contain the features and capabilities in a PCMCIA Type II compliant size usually reserved for full size ISA cards. The included Dos client software driver allows the user to change the default configuration if needed.</p>	<p>The Model CON422 converts unbalanced RS-232 signals to balanced RS-422 signals. The RS-422 standard uses a balanced voltage Digital interface to allow communications of 90kbps on cable lengths of 400 feet. Ten receivers can be connected to any one drivers for use in multi-drop systems. The RS-232 port uses a male DB-25 type connector with pins 2 (TD input) and 3 (RD output) supported. Protective ground (pin 1) and Signal Ground (pin 7) are also connected. The RS-422 port uses a female DB-25 type connector with the Send Data outputs on pins 2 and 14, and the Receive Data inputs on pins 5 and 17. Protective Ground (pin 1) and Signal Ground (pin 7) are connected through to the RS-232 connector. To eliminate the need for an external power supply, +12VDC must be available on pin 25 of the RS-422 side of the device.</p>																																										
<p>Typical Applications</p> <ul style="list-style-type: none">Test printers/terminal devices by serving as a character or pattern generator with two keystrokesDetermine baud rate and framing with one keystroke within 15 charactersStart and/or stop capture on occurrence of a stringDetermine actual speed of transmission of data through any circuit with timed BERT testCause failures on Digital (DDS) circuits when traditional TELCO tests will not detect errors	<p>Specifications</p> <table><tr><td>Bus PCMCIA</td><td>MTBF >150,000-hours</td></tr><tr><td>UART 16550</td><td>Power Requirements 5VDC @ 25mA</td></tr><tr><td>Throughput 115kbps</td><td>Certification CE marked FCC Class B</td></tr><tr><td>Interrupts Full AT interrupts</td><td>OS Support Dos Windows 95/98/NT/2000</td></tr><tr><td>Connectors RS-232: DB25/DB9 ULTRAPC: DB25P (EIA-530 or EIA-570)</td><td></td></tr><tr><td>Operating Temperature 0° to 50° C</td><td></td></tr><tr><td>Storage Temperature -20° to 70° C</td><td></td></tr><tr><td>Humidity 10 to 90% RHNC</td><td></td></tr></table>	Bus PCMCIA	MTBF >150,000-hours	UART 16550	Power Requirements 5VDC @ 25mA	Throughput 115kbps	Certification CE marked FCC Class B	Interrupts Full AT interrupts	OS Support Dos Windows 95/98/NT/2000	Connectors RS-232: DB25/DB9 ULTRAPC: DB25P (EIA-530 or EIA-570)		Operating Temperature 0° to 50° C		Storage Temperature -20° to 70° C		Humidity 10 to 90% RHNC		<p>Ordering Guide</p> <table><tr><td>CON485</td><td>\$69</td></tr><tr><td>CON485/F</td><td>\$69</td></tr><tr><td colspan="2">Female connector on RS-232 side</td></tr><tr><td>CON422</td><td>\$69</td></tr><tr><td>CON422/F</td><td>\$69</td></tr><tr><td colspan="2">Female connector on RS-232 side</td></tr><tr><td>CONPS</td><td>\$19</td></tr></table> <p>Gender Changes</p> <table><tr><td>GC25PF</td><td>\$10</td></tr><tr><td colspan="2">25-pin female to female</td></tr><tr><td>GC9PM</td><td>\$9</td></tr><tr><td colspan="2">9-pin male to male</td></tr><tr><td>GC9PF</td><td>\$9</td></tr><tr><td colspan="2">9-pin female to female</td></tr></table>	CON485	\$69	CON485/F	\$69	Female connector on RS-232 side		CON422	\$69	CON422/F	\$69	Female connector on RS-232 side		CONPS	\$19	GC25PF	\$10	25-pin female to female		GC9PM	\$9	9-pin male to male		GC9PF	\$9	9-pin female to female	
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RS-530/422/485 version, manual, software, & cable																																												
<p>Ordering Guide</p> <table><tr><td>DLM200</td><td>\$2149</td></tr><tr><td colspan="2">232 tester, cable, breakout box, & AC adapter (110VAC)</td></tr></table>	DLM200	\$2149	232 tester, cable, breakout box, & AC adapter (110VAC)																																									
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DB9 RS232 TO RS485 Converter



Datasheet #1873



CONV485/DB9

- Lowest cost RS485 for your PC
- Up to 460kps
- No external power required when communicating via a short cable with one device
- Simple installation, no need to shut off PC to connect
- Nothing to configure, no jumpers to set automatically adjusts to the speed of the data
- Auto RTS built in
- Plugs directly into standard PC RS232

The Model CONV485/DB9, unlike other converters can use signal power to run converter components for at least one RS-485 device from any standard RS-232 port of a PC. This makes the CONV485/DB9 one of the most cost effective RS-485 solutions on the market. Use with your standard PC or Laptop to control RS-485 devices directly with no special software required.

Specifications

Throughput

Serial-maximum
460.8kbps
(limited by cable type,
length, driver/
receiver
characteristics)

Power Requirements

Not required for single
device in shorter
distances +5.1VDC to
+12VDC
@ 50mA to J2 (RS485) pin
8 with return via
J2(RS485) pin 5 for
multiple devices and
long cabling.

Connectors

One 9-pin DB female
RS-232
connection and one
9-pin DB male
RS-485 connection

Certification

FCC compliant
CE marked

Operating

Temperature

0 ° to 60 °C

Humidity

90% at STP

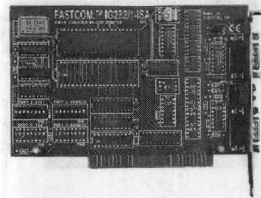
OS Support

Works with any RS-232
device communication
software under all
operating systems.

Ordering Guide

CONV485/DB9 \$49
Converter for RS-232 to RS-485. Only \$45 when
Purchased with our Remote Serial I/O Products

Single High Speed RS232 Isolated, 16850 UART



Datasheet #1842



FASTCOMIG232ISA

- One serial RS-232 port
- Full signal & ground isolation
- Auto RTS control for RS-485
- Dos, Windows 95/98/NT/2000 compatible
- 16C850 UART w/128-byte FIFOs
- Compatible w/16550 & 16650
- Standard baud rates up to 460.8k
- Low CPU overhead w/large FIFO

The FASTCOMIG232ISA adapter is one of the fastest, most advanced, fully Isolated singleport asynchronous ISA RS-232 serial interface in the industry. The FASTCOMIG232ISA features one discrete RS-232 channel.

Specifications

Bus

ISA

UART

Type 16C850 serial

Throughput

Serial-maximum
1.5Mbps
(limited by cable type,
length, driver/
receiver
characteristics)

I/O Addressing

User selectable
switch addressing
per channel

Interrupts

User selectable
interrupts, separate
or shared

Connectors

Single DB9 male on
rear bracket of
board

Operating Temperature

0 ° to 70 °C

Storage Temperature

-20 ° to 70 °C

Humidity

0 to 90% (noncondensing)

MTBF

28.91 years

Power Requirements

+5VDC 300mA (typical)

Certification

FCC compliant
CE marked

OS Support

Dos,
Windows 95/98/NT/2000

Ordering Guide

FASTCOMIG232ISA \$189
RS-232, 1-port Isolated card, CD w/drivers &
e-manual

Comprehensive Platform Integration Services

ICS Advent is not just computers. For years ICS Advent has been providing platform integration services for some of the world's largest and fastest growing communications systems suppliers. ICS Advent's platform integration services manage all of the 'pre-competitive' aspects of configuring and integrating open communications systems. By working with us, our partners are able to focus more of their valuable resources on their core value-add: developing software, deploying new networks, or managing uptime to support new network and communications services.

ICS Advent's platform integration experience in open communications systems markets is unique in the high availability server industry.

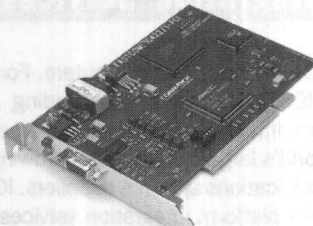

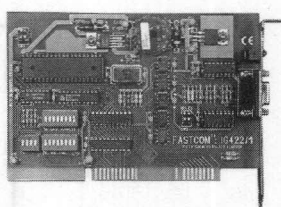

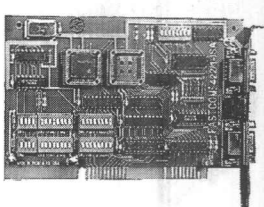

Our platform integration services are rooted in our ISO 9001 certified design, production, test, quality control and documentation processes. At ICS Advent, we manage literally hundreds of platform integration related tasks for our partners, including:

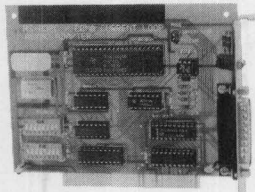
- System-level design support including the evaluation, selection and integration of third party components - including CT and IP Telephony servers
- Full configuration management and documentation support including proactive revision control and EOL planning
- Factory integration based on our ISO 9001 certified manufacturing processes
- Industry standard test procedures and custom simulation protocols
- Quick shipment direct to your end-customers for stable configurations
- 24 X 7 technical support

Through this platform integration capability, ICS Advent has helped its partners take time and cost out of their solution development and deployment processes.

ICS Advent is the platform integration partner for some of the largest network infrastructure brands in the world. We also help some of the hottest independent software vendors meet market demand for bundled solutions. ICS Advent is fast becoming the preferred choice for helping next generation service providers increase uptime and reduce infrastructure-related costs.

Serial Single Port Cards

PCI Single High Speed RS-422/485 Isolated, 16850 UART	Single High SPEED RS422/485 Isolated, 16850 UART	Single High Speed RS-422/485, DB9, 16850 UART																																												
 Datasheet #1844 	 Datasheet #1841 	 Datasheet #1838 																																												
FASTCOMIG422PCI	FASTCOMIG422ISA	FASTCOM422/1ISA																																												
<ul style="list-style-type: none">• One serial RS-422/485 port• Full signal & ground isolation• Auto RTS control for RS-485• Dos, Windows 95/98/NT compatible• 16C850 UART w/128-byte FIFOs• Compatible w/16550 and 16650• Standard baud rates up to 460.8k• Low CPU overhead w/large FIFO	<ul style="list-style-type: none">• One serial RS-422/485 port• Full signal & ground isolation• Auto RTS control for RS-485• Dos, Windows 95/98/NT/2000 compatible• 16C850 UART w/128-byte FIFOs• Compatible w/16550 & 16650• Standard baud rates up to 460.8k• Low CPU overhead w/large FIFO	<ul style="list-style-type: none">• One serial RS-422/485 port• Auto RTS control for RS-485• Dos, Windows 95/98/NT/2000 compatible• 16C850 UART w/128-byte FIFOs• Compatible w/16550 and 16650• Standard baud rates in regular mode.• 1.5Mbps in high speed mode (limited by cable type, length, driver/receiver characteristics)																																												
<p>The FASTCOMIG422PCI adapter is one of the fastest, most advanced, fully Isolated asynchronous RS-422 or RS-485 serial interface in the industry. The FASTCOMIG422PCI features one RS-422/485 channel, complete with RTS and CTS flow control signals.</p>	<p>The FASTCOMIG422ISA adapter is one of the fastest, most advanced, fully Isolated Asynchronous RS-422 or RS-485 serial interface in the industry. The FASTCOMIG422ISA features one RS-422/485 channel, complete with RTS and CTS flow control signals.</p>	<p>The advanced FASTCOM422/1ISA is fully compatible with standard 16C550 and 16C650 UARTs, and provides extraordinary 128-byte receive and transmit FIFOs for buffering. This buffering is extremely important when working with high-overhead operating systems such as Windows NT and Windows 95 (drivers supplied). The extra deep FIFOs prevent data loss due to overrun and dramatically improve data throughput in all applications. Our software drivers support all standard baud rates plus a high speed mode capable of up to an amazing 1.5Mbps.</p>																																												
Specifications	Specifications	Specifications																																												
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FASTCOMIG422PCI \$249 CD w/drivers & e-manual	FASTCOMIG422ISA \$199 RS422/485 1-port Isolated card, CD w/drivers & e-manual	FASTCOM422/1ISA \$189 RS-422/485, 1-port card, CD w/drivers, e-manual & cable																																												

20mA Current Loop Interface

Datasheet #1076

**L20MA**

- Large FIFO will operate as 20mA or RS-232
- High performance 16550 UART
- Functions as COM1 through COM4
- SMART14 software included
- Shared interrupts for multiple boards

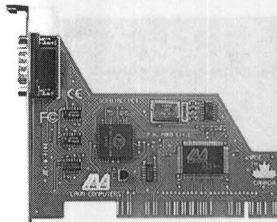
The new L20MA is an asynchronous serial communications adapter that provides both RS-232C and 20mA CURRENT LOOP interfaces. The L20MA adapter is designed for commercial, industrial and OEM applications. We've combined rugged construction with a high performance 16550 UART and made the L20MA compatible with most operating systems and software.

Specifications

Bus ISA	Storage Temperature -20 ° to 70 °C
UART TIL16C550	Humidity 0 to 90% (non-condensing)
Baud Range All standard PC baud rates up to 256K	MTBF 41.39 years (calculated)
I/O Addressing Switch selectale	Power Requirements +5 @ 200mA (typical)
Interrupts Switch selectale	+12 @ 20mA
Connectors DB25 male	-12 @ 20mA
Operating Temperature 0 ° to 70 °C	OS Support Dos, Windows 95/98/NT/2000

Ordering Guide

L20MA \$169
Card, manual, software

Single Port PCI RS-232 Interface

Datasheet #1876

**PCI-RS232**

- Single RS-232 Serial Channel
- Windows 98/NT/2000 & Linux compatible
- 16550 UART, up to 115.2kbps
- PCI specification 2.1 compliant (seen over bridge)
- Standard PC DB9 male connector
- Auto IRQ & PCI I/O address selection
- Fully supports PCI IRQ sharing
- Backward compatible with "COM1-4" only software

The PCI-RS232 is the ideal board for the user that needs just one more RS-232 port in their modern PC. Many PC motherboard or single board computers come with two standard RS-232 ports. Many users may have four port boards installed in their PC. The PCI-RS232 can give them that third or fifth port needed to meet their extra application need. The PCI-RS232 is 100% compatible with any RS-232 serial peripheral including modem, PalmPC, Digital camera, bar-code scanner, UPS, test equipment, and TAPI telephone.

Specifications

Bus PCI	Humidity 10 to 90% at STP
UART 16550	MTBF 125,000 hours
Baud Range 115.2kbps	Power Requirements ±5V
I/O Addressing Plug-n-Play Auto Selection	Certifications FCC compliant CE marked
Interrupts Auto selects 1 interrupt per card on PCI	OS Support Windows 95/98/NT/2000, Linux
Connectors 9-pin on board	
Operating Temperature 0 ° to 70 °C	

Ordering Guide

PCI-RS232 \$49
Card, manual, software

Strategic Technology Partnerships

By definition, Open Communications Systems, and other elements of next generation data, voice and converged networks, will be based on standards. These systems will also incorporate best-in-class components and subsystems from a host of sources. But openness causes some of its own challenges. Which CPU? From whom?

ICS Advent understands the technologies forming the core of your OCS solution. Our understanding comes from two sources: experience and strong partnerships with suppliers of core computing and communications technologies. When you choose ICS Advent as your computing platform partner, you are choosing to partner with some of the best technology companies in the world.

ICS Advent is one of only nine companies designated an Intel Applied Computing Platform Provider (ACPP). This elite status means that ICS Advent works closely with Intel on the development and commercialization of chipset designs for deployment in voice, data and converged network infrastructure environments. It also means that ICS Advent is able to work with these chipsets for months before their general release, providing you with added support for your solution.

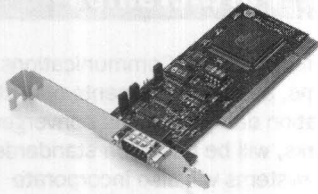
As a Gold member of Microsoft's OEM System Building Program, ICS Advent works directly with Microsoft on new releases of MS operating systems. Advance testing these products on ICS Advent platforms insures compatibility and maximizes performance.

And our partnerships do not end there. For over a decade, ICS Advent has maintained close partnerships with the leading and emerging suppliers of the highest performance, best value, most reliable components in the world. And during the past few years, we have extended our network to include leaders in Linux, CT servers, remote monitoring subsystems and a host of enterprise and communications applications.

At ICS Advent we recognize the value strong partnership brings to our business...and yours.

Serial Single Port Cards

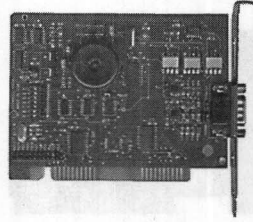
PCI/ISA Isolated and Non-Isolated RS422/485 Single Port Adapters



Datasheet #1784



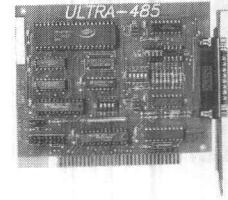
PCI-RS422



Datasheet #1870



RS422I-PA



Datasheet #1152



ULTRA-485

- Optically isolated communications
- Distances to 4000-feet
- RS-422/485 with half/full duplex operation
- Half card length

- Automatic control of RS-485 driver under Windows systems
- Baud rates up to 460,800 baud
- Detected as standard COM port by Windows 95/98/NT/2000/ME
- Single channel DB9 male
- AT interrupts (ISA)
- Auto address/IRQ (PCI)

This half size card can be installed in either long or short ISA or PCI slots and is designed for long distance transmission/reception electrically line in noisy environments. It is opto-isolated to assure communication when large common mode noise is superimposed on the transmit/receive lines.

Opto-isolators are provided on the transmit and receive lines as well as on the RTS and CTS lines. An onboard DC-DC converter provides isolated +5 VDC to power the transceiver and RTS and CTS circuits.

Specifications

Bus

PCI
PCI-RS422, PCI-RS422I
ISA
RS422I-PA, RS422AT-PA

Controller

UART 16550

Baud rate

Up to 115,200 baud, Asynchronous. A faster range of rates, up to 460,800 baud, is achieved by jumper selection on the card. Type 16550 UARTs with 16 byte FIFO buffer

I/O Addressing

PCI
Plug-n-Play
ISA
User address switch

Interrupts

PCI
Auto selection
ISA
AT interrupts

Connectors

DB9 male

Operating Temperature

0 ° to 60 °C

Storage Temperature

-50 ° to 120 °C

Humidity

5 to 90%, non-condensing.

MTBF

100-years

Power Requirements

ISA
+5VDC @ 400mA typical
PCI
+ 5VDC at 125 mA typical
-12VDC at 5 mA typical
+12VDC at 5 mA typical
750mW total power consumption

Certification

CE marked

OS Support

Dos 3.3 and higher, Windows 95/98/NT/2000/ME

Ordering Guide

PCI

PCI-RS422 \$149

PCI Non-Isolated RS422/485 single port board, manual, & CD

PCI-RS422I \$199

PCI Isolated RS422/485 single port board, manual, & CD

ISA

RS422AT-PA \$99

Non-Isolated, ISA RS422/485 board, CD, & manual

RS422I-PA \$130

Isolated board, ISA RS422/485 board, CD, & manual

RS-422/485 Adapter For Windows, OS/2 & NT

- Single channel RS-485/422 adapter for Windows, NT OS/2, & Dos
- Automatic control of RS-485 driver enable signal RTS
- Speeds to 115kbps
- Selectable termination, echo mode, 2/4 wire operation
- No special drivers required acts like an RC-232 port to the system

The Model ULTRA-485 incorporates unique hardware circuitry that enables the RS-485 interface to appear to be standard COM: interface, requiring no additional software drivers. Previous RS-485 interfaces required the software to "turn on" RTS to transmit and then "turn off" RTS at the end of the character. This required overhead and special interrupt processing. New operating systems such as Windows, 95/98/NT/2000 OS/2 and other multi-user operating systems typically will not allow the user access to the low level registers of the UART chip without writing a specialized driver or require significant overhead to accomplish this simple task. Low level RS-485 driver maintenance is handled by the hardware on the ULTRA-485 rather than through software, therefore, initial development for RS-232 communications can be effortlessly modified to RS-485.

Specifications

UART

16550 UART

Baud Rate

115kbps

I/O Addressing

2-5, 7, 10-12, or 15
(2 is 9 on AT class)

Interrupts

AT interrupts

Connectors

EIA 530 DTE pinout on DB25P

Operating Temperature

0 ° to 50 °C

Storage Temperature

20 ° to 70 °C

Humidity

0 to 90% RHNC

MTBF

>150,000-hours

Power Requirements

+5V @ 160mA

Certification

CE marked

OS Support

Dos, Win 95/98/NT/2000

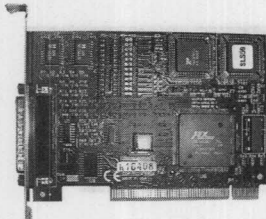
Ordering Guide

ULTRA-485 \$149

Board, manual, & software

ULTRA-485/650 \$159

Board w/16550 UART, manual, & software

**Single Port PCI High Speed
RS-232/530/422/485 Interface**

Datasheet #1865

**PCI-ULTRA**

- Single RS-232/530/422/485 serial channel
- Auto RTS control for RS-485
- Dos, Windows 95/98/NT/2000 support
- 16C850 UART w/128-byte FIFOs
- Compatible w/16550 & 16650
- Standard baud rates up to 460.8kbps (optional higher rates)
- PCI specification 2.1 compliant (seen over bridge)
- DB25 male connector (EIA-530)
- Auto IRQ & PCI I/O address selection
- Cable lengths up to 4000 feet

The new PCI-ULTRA adapter is the fastest, most advanced, single-port asynchronous serial interface in the industry that can be configured for either RS-232, RS-530, RS-422 or RS-485. Designed as the PCI version of our popular ISA ULTRA-485, the new PCI-ULTRA can also run as either a RS-232 or RS-530 port. When configured the PCI-ULTRA for RS-485 has automated RTS control under Windows applications which allows board to be plug and play.

Specifications**Bus**

PCI Specification 2.1,
works past PCI bridge
in Plug and Play mode

UART

Type 16C850 serial

Throughput

Serial- Maximum
460kbps (optional
higher speeds)

I/O Addressing

Plug-n-Play Auto
Selection

Interrupts

Auto selects 1 interrupt
per card on PCI

Connectors

One 25-pin DB male on
rear of card (EIA-530)

Operating**Temperature**

0 ° to 50 °C

Storage Temperature

-20 ° to 70 °C

Humidity

10 to 90%
(non condensing)

MTBF

Greater than
150,000 hours
(calculated)

Power**Requirements**

+5VDC 480 mA
(typical)

+12VDC 50mA

-12VDC 50mA

Certification

FCC Class A (47 CFR
Part 15, Subpart B)
UL 1950, 2nd edition
1993

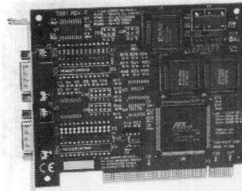
CE Conformity with:
EU EMC Directive
89/336/EEC
EU Low Voltage
Directive 72/23/
EEC

OS Support

Dos, Windows 95/98/
NT/2000

Ordering Guide

PCI-ULTRA \$189
16850 card, manual, & software

**Dual Port PCI RS-232
Interface**

Datasheet #1680

**COMM232PCI/2-55**

- 2-port RS-232 interface
- 16550, 16650 & 16750 UART Versions
- Data rates up to 460.8kbps
- Supports all PCI interrupts
- Onboard interrupt status port provides efficient interrupt sharing

The Model COMM232PCI/2 provides two RS-232 serial ports for industrial control and automation applications as well as computer to computer communications. The onboard interrupt status port provides maximum Windows flexibility. The COMM232PCI/2 includes the 16550 UART, providing a 16-byte receiver and transmit FIFO buffers. The COMM232PCI/2-65 utilizes the 16650 UART, providing 32-byte FIFO buffers. The last member of the series, Model COMM232PCI/2-75 utilizes the 16750 UART, with buffer sizes of 64 bytes.

Windows 95 automatically configures the COMM232PCI/2, therefore drivers are not required. Drivers are provided for Windows NT & Windows 2000.

Specifications**Bus**

PCI

UART

16550, 16650, 16750

Baud rate

460.8kbps

I/O Addressing

Plug-n-Play Auto Select

Interrupts

One auto select

Connectors

Two DB-9P

Operating Temperature

0 ° to 50 °C

Storage**Temperature**

-20 ° to 70 °C

Humidity

10 to 90% RHNC

MTBF

>150,000 POH
(calculated)

Power Requirements

+5 VDC @ 240mA

+12 VDC @ 30mA

-12 VDC @ 50mA

OS Support

Dos, Windows 95/98/
NT/2000

Ordering Guide

COMM232PCI/2-55 \$199
16550 card, manual, software
COMM232PCI/2-65 \$219
16650 card, manual, software
COMM232PCI/2-75 \$229
16750 card, manual, software

**Comprehensive
Customer Support**

At ICS Advent, our commitment to comprehensive customer support extends from the integrity of the initial system design all the way through long-life deployment under even the most demanding field conditions. Every one of our systems is manufactured and thoroughly tested to meet specific application criteria in ICS Advent's state-of-the-art ISO-9001 certified production facilities. All ICS Advent products are covered by a two year warranty and are backed by phone and web-based technical support 24 hours a day, 7 days a week.

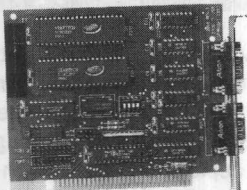

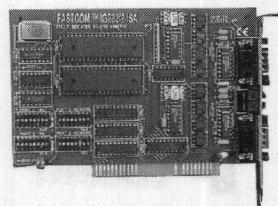

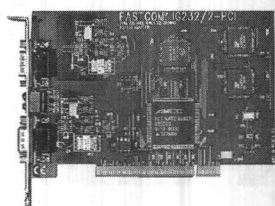

To further enhance the field maintainability of our systems, ICS Advent offers a variety of options for integrating remote status and fault monitoring capabilities that can provide for uninterrupted operation and more cost-effective use of service resources by quickly identifying fault conditions and even anticipating some problems before they occur.

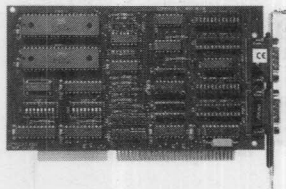
In addition to our service-oriented product innovations and strong emphasis on quality, ICS Advent's key strength is in our ability to work closely with you as a full partner, blending our customer support capabilities to complement your existing business strategies and to provide unparalleled support for your end customers.



Configure your system online at
www.icsadvent.com or
call one of our sales engineers
for assistance to order your system
888-294-4561

Serial Dual Port Cards

Dual RS-232 Card, 16550, 16-Bit Addressing Capability	Dual Port Isolated High Speed RS-232, 16850 UART	Dual Port Isolated PCI High Speed RS-232, 16850 UART																																																																				
 Datasheet #1401 	 Datasheet #1837 	 Datasheet #1840 																																																																				
DUAL232/AT	FASTCOM2I232ISA	FASTCOM2I232PCI																																																																				
<ul style="list-style-type: none">• Dual port RS-232 interface• 16-bit addressing capability (3220/3228 etc.)• 16550 buffered UART• Selectable address including COM:1 through COM:4• All modem control signals provided• Multiple cards can share same IRQ	<ul style="list-style-type: none">• Two serial RS-232 ports• Full signal & ground isolation• Dos, Windows 95/98/NT/2000• 16C850 UART w/128-byte FIFOs• Compatible w/16550 & 16650• Interrupt sharing provided• Standard baud rates up to 115.2k• Low CPU overhead w/large FIFO	<ul style="list-style-type: none">• Two-serial RS-232 ports• Full signal & ground isolation• Dos, Windows 95/98/NT/2000• Compatible w/16550 & 16650• 16C850 UART w/128-byte FIFOs• Interrupt sharing provided• Standard baud rates up to 115.2K• Low CPU overhead w/large FIFO																																																																				
<p>The Model DUAL232/AT provides PC systems with two RS-232 asynchronous links to data collection and other devices. This card provides an excellent means for expanding the number of serial ports in a PC. The DUAL232/AT supports all modem control signals. The card meets the RS-232C specification and provides an asynchronous serial I/O port for a modem, plotter, serial printer or serial mouse. The DUAL232/AT provides 16-bit addressing capability. This feature allows greater flexibility in selecting the address for the card. This will allow selection of OS/2 COM: addresses such as 3220 or 3228 Hex. Each serial port occupies eight consecutive I/O locations, and looks to the PC as a standard serial port.</p>	<p>The FASTCOM2I232ISA adapter is one of the fastest, most advanced, fully Isolated two-port asynchronous ISA RS-232 serial interface in the industry. The FASTCOM2I232ISA features two discrete RS-232 channels.</p>	<p>The FASTCOM2I232PCI adapter is one of the fastest, most advanced, fully Isolated two-port asynchronous RS-232 serial interface in the industry. The FASTCOM2I232PCI features two discrete RS-232 channels.</p>																																																																				
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<p>Ordering Guide</p> <p>DUAL232/AT \$99</p> <p>Card, software, manual</p>	<p>Ordering Guide</p> <p>FASTCOM2I232ISA \$225</p> <p>ISA RS-232, 2-port Isolated card, CD w/drivers & E-manual</p>	<p>Ordering Guide</p> <p>FASTCOM2I232PCI \$249</p> <p>PCI RS-232 2-port Isolated card, CD w/drivers, E-manual & cable</p>																																																																				

Dual Port ISA RS-232/422/485 Interface

Datasheet #1067

**SPRT2B/AT**

- Dual RS-422/485 or RS-232, ports can be mixed
- Extended AT interrupts
- Addressable COM:1-COM:4
- 16550 UARTs
- PC compatible, speeds to 115kbps
- Selectable address including COM1: through COM4: or any other I/O address up to 3FF hex
- Multiple cards can share the same IRQ line
- RS-485 two or four wire operation

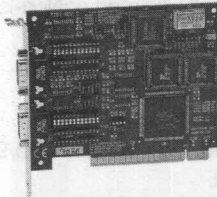
The Model SPRT2B/AT provides the PC with two, direct RS-232/422/485 asynchronous links, to data collection and other devices. Operationally independent ports allow users the choice of two ports as RS-232, or RS-422/485, or one port of each type. Distances of up to 5000-feet are easily accommodated. The Model SPRT2/AT allows PC based systems to be used in a variety of industrial and networking applications requiring long distances or multi-drop communications.

Specifications

Bus ISA	Operating Temperature 0° to 50 °C
UART 16550 UART	Storage Temperature -20° to 70 °C
Baud Rate 115.2kbps	Humidity 0 to 90% RHNC
I/O Addressing 8 consecutive locations/port	MTBF >150,000hrs (calculated)
Interrupts SPRT2A/AT: 2-5 SPRT2B/AT: 2-5, 7, 10-12, 15	Power Requirements +5V @ 195mA, ±12V @ 25mA ea.
Connector DB-9P	OS Support Dos, Windows 95/98/NT, 2000, OS/2, QNX

Ordering Guide

SPRT2B/AT \$189
ISA 2-port card, software & manual

Dual Port PCI RS-232/422/485 Interface

Datasheet #1660

**UC232PCI/2-55**

- 2-port RS-232/422/485 interface
- Onboard RS-485 auto enable circuit
- 16550, 16650, & 16750 UART versions
- Data rates up to 460.8kbps
- Supports all PCI interrupts
- Onboard interrupt status port provides efficient interrupt sharing

The UC232PCI/2 Series provides two field selectable RS-232/422/485 serial ports for control and industrial automation applications. The ports must be selected as either RS-232 or RS-422/485. Selection is independent as you can mix the ports in any of the interface combinations to provide maximum flexibility to your application. Configure both ports as RS-232 for standard serial COM: port requirements. Choose the RS-422 mode for long distance device connections up to 4000-feet where noise immunity and high data integrity are essential. Select RS-485 and capture data from multiple peripherals in an RS-485 multi-drop network. Up to 31 RS-485 devices can be connected to each port to automate your data collection.

Specifications

Bus PCI	Storage Temperature -20° to 70 °C
Controller -55: 16550 -65: 16650 -75: 16750	Humidity 10 to 90% RHNC
Throughput: 115kbps	MTBF >150,000 hrs (calculated)
I/O Addressing 1 switch per port	Power Requirements +5 VDC @ 480mA ±12 VDC @ 50mA each
Interrupts Separate per port	OS Support Dos, Windows 95/98/NT/2000, OS/2
Connectors Two DB-9P	
Operating Temperature 0° to 50 °C	

Ordering Guide

UC232PCI/2-55 \$279
16550 card, manual, software
UC232PCI/2-65 \$299
16650 card, manual, software
UC232PCI/2-75 \$309
16750 card, manual, software

Extensive Applications Expertise

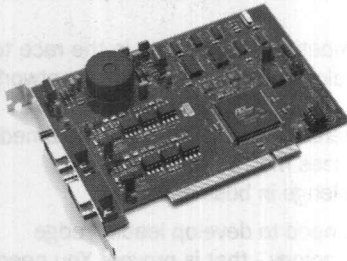
Competing and winning in the race to develop central office or CPE network infrastructure to support next generation data, voice and multimedia services may be the toughest challenge in business today.

You need to develop leading edge technology - that is proven. You need a computing platform that meets your customer requirements for reliability - but does not price you out of the market. You need partners who understand your application requirements - and can help you make sound technical and business decisions.

At ICS Advent we understand the business of developing and deploying high performance, cost-effective, next generation communications systems. We know the applications. We know the computing system requirements to support those applications.

In today's fast-moving highly-competitive environments, you don't have the luxury of time to educate your suppliers or to compensate for their lack of expertise. That's why ICS Advent has consistently gone the extra mile to maintain extensive in-depth applications expertise in every one of our target markets. That helps your organization develop systems that are more reliable, lower cost and faster to deploy.

ICS Advent has been a prime mover in the development of Open Communications Systems (OCS) computing platforms targeted for deployment in a host of carrier grade CO and business critical CPE applications. From predictive dialing and unified messaging in call center/CRM, to gateways and firewalls in the CPE cabinets, to unified messaging and IVR in service provider POPs, ICS Advent has been there. Not only have we built a strong base of industry-specific expertise that translates into more cost-effective solutions for our customers; we've also worked closely with other suppliers to develop new and innovative platforms, which help extend the applications possibilities across the entire communications industry.

Dual Port PCI Isolated & Non-Isolated RS-422/485 Adapter

Datasheet #1828

- Two optically Isolated or Non-Isolated RS-422/RS-485 ports
- Baud Rates up to 460.8kbps
- 16550 UARTs
- Auto RTS control for RS-485
- Support for Dos, Windows 95/98/NT/2000/ME
- No base address or IRQ
- Switches to set
- Interrupt sharing provided

PCI-422/485-2I

The PCI-422/485-2 and PCI-422/485-2I support both RS-422 and RS-485 communications, the cards utilize differential balanced drivers for long range and noise immunity. On the PCI-422/485-2I the data lines are opto-isolated from the computer and from each other to ensure communication when large common mode noise is present. In RS422 mode the PCI-422/485-2 and PCI-422/485-2I have the capability to jumper in load resistors which terminate the communication lines. RS-422 communications requires that a transmitter supply bias voltage to ensure a known "zero" state. Receiver inputs at each end of the network can be terminated to eliminate "ringing". All cards support biasing by default and support termination by jumpers on the card.

In RS-485 communications, the driver must be enabled and disabled as needed, allowing all cards to share a two wire cable. The PCI-422/485-2 and PCI-422/485-2I automatically control this function, which is what is commonly known as Automated RTS. With automatic control, the driver is enabled when data is ready to be transmitted. The driver remains enabled for one additional character's transmission time after data transfer is complete and then is disabled. The receiver is also normally enabled, then disabled during RS-485 transmissions, and then re-enabled after transmission is completed. This makes the PCI-422/485-2 and PCI-422/485-2I ideal for Windows 95/98/NT/2000 operation under RS-485.

Specifications**Bus**

PCI

UART

16550

Character Length

5, 6, 7, or 8 bits

Parity

Even, odd, or none

Stop Interval

1, 1.5, or 2 bits

Throughput

Up to 460.8kbps

Address

Continuously mappable within 0000 to FFFFh range of PCI bus addresses

Receiver Input Sensitivity

±200mV, differential

Common Mode Rejection

+12V to CE7V

Transmitter Output Drive

60mA, with thermal shutdown

Connectors

2 DB-9 male on rear of card

Isolation

500VDC

Operating Temperature

0 ° to 60 °C

Storage Temperature

-50 ° to 120 °C

Humidity

5 to 95% RHNC

MTBFIsolated 97.95 years
Non-Isolated 159.81 years**Power Requirements**

+5VDC @ 125mA

+12VDC @ 5mA

-12VDC @ 5mA

OS Support

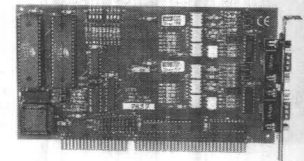
Dos, Windows 95/98/NT/2000/ME

Ordering Guide

PCI-422/485-2 \$189

Non-Isolated 2-port RS-422/485 card
w/software & manual

PCI-422/485-2I \$249

2-port PCI Isolated RS-422/485 card w/CD,
software & manual**Dual Port Isolated and Non-Isolated RS-422/485 Adapters**

Datasheet #1454

**ULTRA-485/2**

- Dual port line-to-line Isolated RS-422/485
- Support for Dos, Windows 95/98/NT/2000
- 500VDC true isolation (RTS)
- Automatic control of RS-485 enable
- Compatible with existing communication drivers
- 16-bit addressing eliminates I/O conflicts
- Diagnostic and utility software included
- 16550 UARTs or 16650 UARTs available

The ULTRA-485/2ISO provides the PC with two Isolated RS-422/485 asynchronous links to data collection and other devices. Isolation is important in installations where the equipment connected to the PC is either located far from the host system, or on a different power transformer circuit. The optical isolation feature of the ULTRA-485/2ISO eliminates the risk of ground loop current, a commonly neglected and misunderstood phenomenon that leads to data errors and/or the destruction of communications equipment. Individually selectable addresses and extended AT interrupts allow for seamless integration into Windows and OS/2 systems. The ULTRA-485/2ISO appears to the host system as a standard COM port requiring no special drivers or additional software.

Specifications**Bus**

ISA

UART16550: Models
ULTRA-485/2ISO
& ULTRA-485/2
16650: Models
U485/2ISO-650**Throughput**

460kbps

I/O Addressing

Switch Selectable

InterruptsFull AT shared or
separate (jumpers)**Connectors**

Two DB-9 male

Operating Temperature

0 ° to 50 °C

Storage Temperature

-20 ° to 70 °C

Humidity

0 to 90% RHNC

MTBF

150,000-hours (calculated)

Power Requirements

+5 VDC @ 700mA

OS Support

Windows 95/98/NT/2000

Ordering Guide

ULTRA-485/2ISO \$259

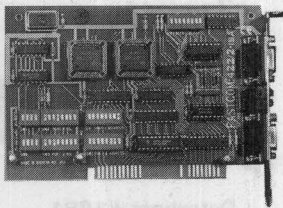
Isolated card, manual, & software, (16550
version)

U485/2ISO-650 \$299

Isolated card, manual, & software, (16650
version)

ULTRA-485/2 \$189

Non-Isolated card, manual, & software, (16550
version)

**Dual Port High Speed RS-422/
485, 16850 UART**

Datasheet #1839

**FASTCOM422/2ISA**

- Two serial RS-422/485 ports
- Auto RTS control for RS-485
- Dos, Windows 95/98/NT/2000
- 16C850 UART w/128-byte FIFOs
- Compatible w/16550 & 16650
- Interrupt sharing provided
- Standard baud rates in regular mode
- 1.5Mbps in high speed mode (limited by cable type, length, driver/receiver characteristics)

The FASTCOM422/2ISA adapter is one of the fastest (1.5Mbps), most advanced, two-port asynchronous ISA RS-422 or RS-485 serial interface in the industry. The FASTCOM422/2ISA features two discrete RS-422/485 channels, complete with RTS and CTS flow control signals.

Specifications**Bus**

ISA

UART

Type 16C850 serial

Throughput

Serial-maximum 1.5Mbps (limited by cable type, length, driver/receiver characteristics)

I/O Addressing

User selectable address

Interrupts

User selectable interrupts

Connectors

Two 9-pin DB male on rear of card

Operating Temperature

0 ° to 70 °C

Storage Temperature

-20 ° to 70 °C

Humidity

0 to 90% (noncondensing)

MTBF

29.3 years

Power Requirements

+5VDC 500mA (typical)

Certification

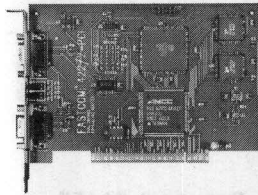
FCC compliant, CE marked

OS Support

Dos, Windows 95/98/NT/2000

Ordering Guide

FASTCOM422/2ISA \$229
RS-422/485, 2-port card, CD w/drivers
& e-manual

**Dual Port PCI High Speed
RS-422/485, 16850 UART**

Datasheet #1831

**FASTCOM422/2PCI**

- Two serial RS-422/485 ports
- Auto RTS control for RS-485
- Dos, Windows 95/98/NT/2000
- 16C850 UART w/128-byte FIFOs
- Compatible w/16550 and 16650
- Interrupt sharing provided
- Standard baud rates in regular mode
- 1.5 Mbps in high speed mode (limited by cable type, length, driver/receiver characteristics)

The FASTCOM422/2PCI adapter is one of the fastest (1.5Mbps), most advanced, two-port asynchronous RS-422 or RS-485 serial interface in the industry. The FASTCOM422/2PCI features two discrete RS-422/485 channels, complete with RTS and CTS flow control signals. The FASTCOM422/2PCI features an on board clock generator to attain nonstandard rates without modifying the hardware or changing the clock.

Specifications**Bus**

PCI Specification 2.1, works past PCI bridge in Plug-n-Play mode.

UART

Type 16C850 serial

Throughput

Serial-maximum 1.5Mbps (limited by cable type, length, driver/receiver characteristics)

I/O Addressing

Plug-n-Play Auto selection

Interrupts

Auto selects 1 interrupt per card on PCI

Connectors

Two 9-pin DB male on rear of card

Operating Temperature

0 ° to 70 °C

Storage Temperature

-20 ° to 70 °C

Humidity

0 to 90% (noncondensing)

MTBF

33.17 years

Power Requirements

+5VDC 500mA (typical)

Certification

FCC compliant, CE marked

OS Support

Dos, Windows 95/98/NT/2000

Ordering Guide

FASTCOM422/2PCI \$299
PCI RS-422/485, 2-port card, CD w/drivers,
& e-manual

Quick Shipment

At ICS Advent we recognize that, no matter how advanced the computing platform, it can't start producing results until it's up and running in the customers environment. Plus, from a business perspective, we understand how important it is for our OEM partners to be able to absolutely rely on our committed shipment schedules.

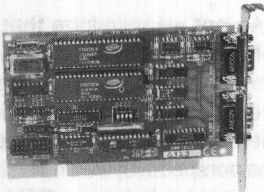
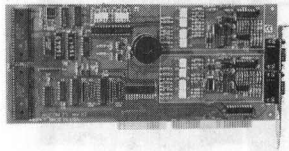
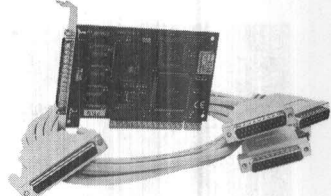

That's why we've worked especially hard to provide an industry-leading combination of system configurability and quick-turnaround manufacturing processes. Our new Omnix family of systems best exemplifies this commitment to rapid-response order fulfillment. The robust and flexible Omnix line consists of seven distinct platforms, ranging from 1U to 6U rack mount versions with a full range of standard and optional sub-systems and components. Driven by straightforward phone, fax or online ordering mechanisms, virtually any Omnix system can be fully configured, assembled, tested and shipped within days of order approval.

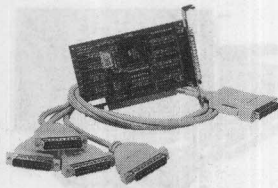
No matter how you choose to work with us - through our Web site, our global network of sales representatives or by calling us direct - ICS Advent is dedicated to guiding you through your choices to deliver the highest levels of value, flexibility and responsiveness to meet your core business objectives.



Configure your system online at
www.icsadvent.com or
call one of our sales engineers
for assistance to order your system
888-294-4561

Serial Dual & Four Port Cards

Dual High-Speed RS-232 TO 460.8kbps, 16650 UART	Dual Port Isolated & Non-Isolated RS-232/422/485 Adapters	4-Port PCI RS-232 Card
		
Datasheet #1459 	Datasheet #1455	Datasheet #1681
HS-RS232/DP	COM485/2	COMM4PCI/EX
<ul style="list-style-type: none">• High-speed support for up to 460.8kbps• 16C650 UARTs with 32-byte FIFO• 16-bit address decoding eliminates Windows video adapter conflicts• Windows 95/98/NT/2000 compatible	<ul style="list-style-type: none">• Dual port Isolated RS-422/485• Supports extended AT interrupts• Dual port Non-Isolated RS232/422/485• Supports 2- or 4-wire RS-422/485 operation• Automatic control of RS-485 enable• Compatible w/existing communication drivers• LED status monitors on transmit & receive	<ul style="list-style-type: none">• 4-port RS-232 interface• 16554 & 16654 Quad UART versions• Data rates up to 460.8kbps• Supports all PCI interrupts• Onboard interrupt status port provides interrupt sharing
<p>Take advantage of today's high speed modems and eliminate the data communications bottleneck within your PC. The HS-RS232/DP supports both Analog and ISDN modems. The card provides two RS-232 serial ports, flexible configuration and supports data rates up to 460kbps. Configure the card to use standard COM:1 through COM:4 addresses or any one of eight additional available addresses for each port. The card also utilizes full 16-bit I/O address decoding to avoid video address conflicts. Individual selectable IRQs can be matched to your available system resources.</p>	<p>The card supports all of the most popular asynchronous communication protocols. The card is 100% compatible with MS-Dos with support for the standard COM1 through COM4 serial port addresses. However, you are not limited only to those address. Continuous address selection is available anywhere in the I/O address range of 000 to 3FF.</p>	<p>The Model COMM4PCI/EX provides four PCI bus RS-232 asynchronous links for communication servers, point of sale (POS) systems, and other data collection devices. The on-board interrupt status port provides maximum Windows flexibility. The Model COMM4PCI/EX-555 utilizes the 16554 Quad UART, providing 16-byte transmit & receive FIFO buffers. The COMM4PCI/EX-655 includes the 16654 Quad UART that provides 64-byte FIFO buffers. Both of these models come with DB-25P connectors on the fan-out cable. The Model COMM4PCI/EX-559 has the 16554 UART and DB-9P connectors on the fan-out cable.</p>
Specifications Bus ISA UART 16C650 Throughput 460.8kbps I/O Addressing 16-bit switch selectable Interrupts 3-5, 9-12, & 15 Connectors Two DB-9 male Operating Temperature 0 ° to 50 °C Storage Temperature -20 ° to 70 °C Humidity 0 to 90% RHNC MTBF >150,000 hours (calculated) Power Requirements +5VDC @ 180mA ±12VDC @ 50mA each Certification CE marked OS Support Dos, Windows 95/98/NT/2000	Specifications Bus ISA UART 16550 Baud ISO-COM485/2 38.4kbps COM485/2 115.2kbps I/O Addressing User selectable address Interrupts Full AT interrupts Connectors Two DB9 male on rear Operating Temperature 0 ° to 65 °C Storage Temperature -50 ° to 120 °C Humidity 5 to 90% (noncondensing) MTBF 74.20-years Power Requirements +5VDC @ 400mA OS Support Dos, Windows 95/98/NT/2000	Specifications Bus PCI UART 16554 or 16654 Throughput 460.8kbps I/O Addressing Auto Selected Interrupts Supports all PCI interrupts Connectors See models Operating Temperature 0 ° to 50 °C Storage Temperature -20 ° to 70 °C Humidity 10 to 90% RHNC MTBF >150,000 POH (calculated) Power Requirements +5VDC @ 240mA +12VDC @ 30mA -12VDC @ 50mA OS Support Dos, Windows 95/98/NT/2000
Ordering Guide HS-RS232/DP \$129 Card, manual, & software	Ordering Guide ISO-COM485/2 \$249 RS422/485 Isolated card, manual, & software COM485/2 \$189 RS232/422/482 Non-Isolated card, manual, & software	Ordering Guide COMM4PCI/EX-555 \$249 16554 card w/DB-25P cable, manual & software COMM4PCI/EX-559 \$249 16554 card w/DB-9P cable, manual & software COMM4PCI/EX-655 \$279 16654 card w/DB-25P cable, manual & software

**4-Port RS-232 High-Speed UNIX
Compatible**

Datasheet #1536

**COMM4AT/EX**

- Speeds up to 460.8kbps
- 16-bit address decode for easy integration
- 16C554 buffered
- Quad UART
- Sharable IRQs

The Model COMM4AT/EX provides the PC with four RS-232 asynchronous ports. The COMM4AT/EX features extended interrupt support, individually selectable or shareable interrupts, and an onboard interrupt status port for maximum Windows flexibility. The COMM4AT/EX has a unique addressing scheme that allows it to be completely compatible with the older model COMM4AT and provides the ability to select specific nonlinear address combinations (i.e. 3F8, 2F8, 3E8, 2E8).

Specifications**Bus**

ISA

UART

16C554

Throughput

460.8kbps

Interrupts

Shareable at IRQs 0, 3-7, 9-12, 15

Connectors

4 DB-25P off cable

Address Requirements

8 consecutive I/O locations per port

Operating Temperature

0 ° to 50 °C

Storage Temperature

-20 ° to 70 °C

Humidity

10 to 90% RHNC

MTBF

>150,000 (calculated)

Power Requirements

+5VDC @ 210mA

+12VDC @ 60mA

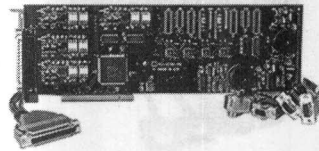
-12VDC @ 80mA

OS Support

Dos, Windows 3.1x/95/NT, OS/2, QNX, UNIX, XENIX

Ordering Guide

COMM4AT/EX \$199
4-port card, manual, software, & cable

**4-Port Isolated RS-422 &
RS-485 Serial Adapters**

Datasheet #1737

**PCI-ICOM Series**

- Four optically Isolated RS-422 or RS-485 ports
- Baud rates up to 460.8kbps
- Supports full-duplex & half-duplex communications (PCI ICOM485/4 only supports half-duplex)
- Supports auto-RTS in windows on RS-485 model
- Fout DB9 male fan-out cable
- Dos, Windows 95/98/NT/2000 compatible

The PCI-ICOM422 & RS-485 cards utilize differential balanced drivers for long range and noise immunity. The data lines are Opto-Isolated from the computer and from each other to ensure communication when large common mode noise is present.

Specifications**Bus**

PCI

UART

16550

Throughput

460.8kbps

I/O Addressing

Plug-n-Play, Auto Select

Interrupts

Auto Select one Interrupt

Isolation

500VAC

Connectors

4 DB9 male, off included cable

Operating Temperature

0 ° to 60 °C

Storage Temperature

-50 ° to 120 °C

Humidity

5 to 95% RHNC

MTBF

52.51 years (calculated)

Power Requirements

+5VDC @ 125mA

+12VDC @ 5mA

-12VDC @ 5mA

OS Support

Dos, Windows 95/98/NT/2000

Ordering Guide

PCI-ICOM422/4 \$429
4-port Isolated 422 card, software,
manual, & cable
PCI-ICOM485/4 \$429
4-port Isolated 485 card, software,
manual, & cable

**Designing for Long-life
& Extensibility**

In recognition of the overall business needs of our customers, every ICS Advent product is proactively designed to provide the highest value over the longest possible deployment life cycles. Unlike the mainstream commercial PC arena, which is fraught with constant changes, industrialized and embedded platforms for applied computing scenarios require a higher degree of configuration stability and constancy. Although tight time-to-market requirements mean that we always must move quickly in fulfilling our customer's specific system configuration requirements, these advantages are quickly lost if the products undergo too many changes during their shipment life cycle.

Inherent to our design philosophy is a continual focus on not only choosing the best components for the specific requirements but also ensuring that those components will be readily available over the longer term. This means constantly staying ahead of the technology adoption curves to evaluate, qualify and integrate new technologies into our architectures while also building and maintaining strong supplier alliances to guarantee product availability. For instance, as an Intel Applied Computing Platform Provider (ACPP), ICS Advent stays constantly on the leading edge of the latest developments in the Intel line of processors and chipsets. In addition, we also future-proof all of our system-level designs through a proactive emphasis on modularity and open-systems architectures. For example, the new Omnix family of rack mount systems relies on a wide use of standards-based modular design concepts to ensure high-value configurability for today and smooth extensibility for tomorrow.

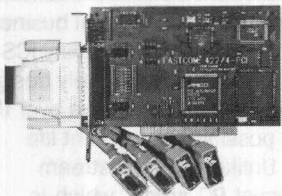
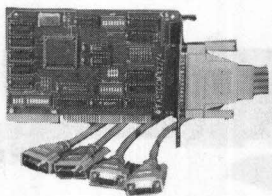
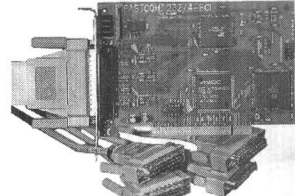

Configure your system online at

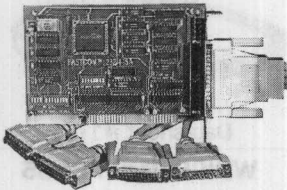
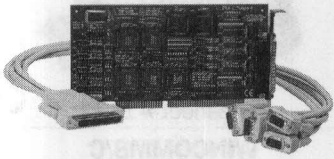
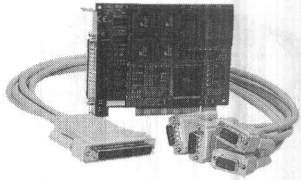



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call one of our sales engineers
for assistance to order your system

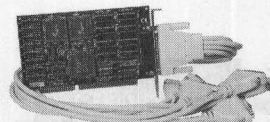
888-294-4561

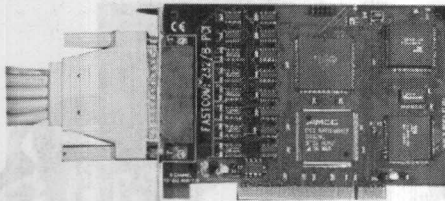
Serial Four Port Cards

4-Port PCI High Speed RS-422/485, DB9, 16850 UART	4-Port High Speed RS-422/485, DB9, 16850 UART	4-Port PCI High Speed RS-232 Card, DB25, 16850 UART
		
Datasheet #1843	Datasheet #1832	Datasheet #1834 
FASTCOM422/4PCI	FASTCOM422/4ISA	FASTCOM232/4PCI
<ul style="list-style-type: none"> Four independent RS-422/485 serial channels Auto RTS control for RS-485 Dos, Windows 95/98/NT/2000 support 16C854 UART w/128 Byte FIFOs Compatible w/16550 & 16650 Standard baud rates in regular mode Up to 1.5Mbps in high speed mode (limited by cable type, length, driver/receiver characteristics) Features onboard clock generator to attain nonstandard rates without modifying the hardware or changing the clock PCI specification 2.1 compliant Auto IRQ & PCI I/O address selection Cable lengths up to 4000-feet 	<ul style="list-style-type: none"> Four independent RS-422/485 serial channels Auto RTS control for RS-485 Dos, Windows 95/98/2000/NT support 16C854 UART w/128-byte FIFO's Compatible w/16550 & 16650 Standard baud rates in regular mode Up to 1.5Mbps in high speed mode (limited by cable type, length, driver/receiver characteristics) User selectable address/IRQ Transmit/receive status LEDs for each channel Cable lengths up to 4000-feet 	<ul style="list-style-type: none"> Four serial RS-232 ports Dos, Windows 95/98/NT/2000 support 16C854 UART w/128-byte FIFOs Compatible w/16550 & 16650 Interrupt sharing provided Standard baud rates in regular mode 1.5Mbps in high speed mode (limited by cable type, length, driver/receiver characteristics)
<p>The FASTCOM422/4PCI adapter is one of the fastest (1.5Mbps), most advanced, four-port Asynchronous RS-422 or RS-485 serial interface in the industry. The FASTCOM422/4PCI features four discrete RS-422/485 channels, complete with RTS and CTS flow control signals.</p>	<p>The FASTCOM422/4ISA adapter is one of the fastest (1.5Mbps), most advanced, four-port Asynchronous ISA RS-422 or RS-485 serial interface in the industry. The FASTCOM422/4ISA features four discrete RS-422/485 channels, complete with RTS and CTS flow control signals.</p>	<p>The FASTCOM232/4PCI adapter is one of the fastest (1.5Mbps), most advanced, four-port Asynchronous RS-232 serial interface in the industry. The FASTCOM232/4PCI features four discrete RS-232 channels, complete with RTS, CTS, DTR, DSR, DCD and RI control signals.</p>
<p>Specifications</p> <p>Bus PCI</p> <p>Throughput Serial- Maximum 1.5Mbps (limited by cable type, length, driver/receiver characteristics)</p> <p>I/O Addressing Plug-n-Play Auto Selection</p> <p>Interrupts Auto selects 1 interrupt per card on PCI</p> <p>Connectors Quad cable included with four 9-pin DB male</p> <p>Operating Temperature 0 ° to 70 °C</p> <p>Storage Temperature -20 ° to 70 °C</p> <p>Humidity 0 to 90% (noncondensing)</p> <p>MTBF 30.42-years</p> <p>Power Requirements +5VDC 500mA (typical)</p> <p>OS Support Dos, Windows 95/98/2000/NT</p>	<p>Specifications</p> <p>Bus ISA</p> <p>UART Type 16C854</p> <p>Throughput Serial-maximum 1.5Mbps (limited by cable type, length, driver/receiver characteristics)</p> <p>I/O Addressing Windows mode, Ports are configured as COM1, COM2, COM3 and COM4</p> <p>Interrupts User selectable interrupts</p> <p>Connectors Quad fan-out cable with four 9-pin DB males</p> <p>Operating Temperature 0 ° to 70 °C</p> <p>Storage Temperature -20 ° to 70 °C</p> <p>Humidity 0 to 90% (noncondensing)</p> <p>MTBF 34.05-years</p> <p>Power Requirements +5VDC 400mA (typical)</p> <p>OS Support Dos, Windows 95/98/2000/NT</p>	<p>Specifications</p> <p>Bus PCI</p> <p>UART Type 16C854 serial</p> <p>Throughput Serial-maximum 1.5Mbps (limited by cable type, length, driver/receiver characteristics)</p> <p>I/O Addressing Plug-n-Play auto selection</p> <p>Interrupts Auto selects 1 interrupt per card on PCI</p> <p>Connectors Quad cable with four 25-pin DB males</p> <p>Operating Temperature 0 ° to 70 °C</p> <p>Storage Temperature -20 ° to 70 °C</p> <p>Humidity 0 to 90% (noncondensing)</p> <p>MTBF 26.26 years</p> <p>Power Requirements +5VDC 500mA (typical) +12VDC 100mA (typical) -12VDC 100mA (typical)</p> <p>Certification FCC compliant CE marked</p> <p>OS Support Dos, Windows 95/98/NT/2000</p>
<p>Ordering Guide</p> <p>FASTCOM422/4PCI \$349</p> <p>CD, drivers, e-manual, quad cable w/four DB9</p>	<p>Ordering Guide</p> <p>FASTCOM422/4ISA \$399</p> <p>Card, CD, drivers, e-manual, & quad fan-out cable</p>	<p>Ordering Guide</p> <p>FASTCOM232/4PCI \$269</p> <p>4-port high speed RS-232, DB25, 16850 UART, CD, drivers, e-manual, & cable</p>

4-Port High Speed RS-232, DB25, 16850 UART	4-Port RS-422/485 Interface Card	4-Port PCI RS-422/485 Interface with Auto Enable
		
Datasheet #1833 	Datasheet #1584 	Datasheet #1679 
FASTCOM232/4ISA	UCOMM422/4A	UC422PCI/4-55
<ul style="list-style-type: none"> • Four serial RS-232 ports • Dos, Windows 95/98/NT/ 2000 compatible • 16C854 UART with 128-byte FIFOs • Compatible with 16550 and 16650 • Interrupt sharing provided • Standard baud rates in regular mode • 1.5Mbps in high speed mode (limited by cable type, length, driver/receiver characteristics) 	<ul style="list-style-type: none"> • Four RS-422/485 ports • Onboard RS-485 auto enable circuit (RTS) • Windows compatible • Shared interrupts • Onboard interrupt status port Provides efficient interrupt sharing • 16-Bit address decoding • 16550, 16650, & 16750 UART models 	<ul style="list-style-type: none"> • Four port RS-422/485 interface • Onboard RS-485 auto enable circuit (RTS) • 16550, 16650, & 16750 UART versions • Data rates up to 460.8kbps • Supports all PCI interrupts • Onboard interrupt status port provides efficient interrupt sharing
The FASTCOM232/4ISA adapter is one of the fastest (1.5Mbps), most advanced, four-port asynchronous ISA RS-232 serial interface in the industry. The FASTCOM232/4ISA features four discrete RS-232 channels, complete with RTS, CTS, DTR, DSR, DCD and RI control signals.	The new Model UCOMM422/4A provides the PC with four RS-422/485 serial ports. The unique feature of the UCOMM422/4A is the ability to be RS-485 compatible without the need for special software or drivers. This ability is especially useful in Windows, Windows NT, and OS/2 environments where lower level I/O control is abstracted from the application program. If this feature is not required, the Model UCOMM422/4N is available.	The Model UC422PCI/4 provides four PCI bus RS-422/485 asynchronous links for data collection and other devices. The onboard interrupt status port provides maximum Windows flexibility. RS-422 provides excellent communications for long distance device connections up to 4000-feet, where noise immunity and high data integrity are essential.
Specifications Bus ISA UART Type 16C854 serial Throughput Serial-maximum 1.5Mbps (limited by cable type, length, driver/receiver characteristics) I/O Addressing Windows mode Ports are configured as COM1, COM2, COM3 and COM4 FASTCOM mode Ports are assigned address by the user Interrupts User selectable interrupts Connectors Quad cable with four 25-pin DB males Operating Temperature 0 ° to 70 °C Storage Temperature -20 ° to 70 °C Humidity 0 to 90% (noncondensing) MTBF 31.30 years Power Requirements +5VDC 400mA (typical) +12VDC 100mA (typical) -12VDC 100mA (typical) Certification FCC compliant, CE marked OS Support Dos, Windows 95/98/ 2000/NT	Specifications Bus ISA UART 16550, 16650, or 16750 depending upon model number Throughput 460.8kbps I/O Addressing Flexible address switches Interrupts 2-7, 9, 10, 11, 12, 15 Connectors DB37 to 4 DB9 male connectors, on included cable Operating Temperature 0 ° to +50 °C Storage Temperature -20 to 70 °C Humidity 10 to 90% RHNC MTBF >150,000-hours (calculated) Power Requirements UCOMM422/4A: +5VDC @ 600mA UCOMM422/4N: +5VDC @ 570mA OS Support Dos, Windows95/98/NT/2000	Specifications Bus PCI UART 16550, 16650, 16750 Throughput 460.8kbps I/O Addressing Plug-n-Play, Auto Select Interrupts Auto Select on Interrupt Status Port Connectors DB37 to 4 DB9 male connectors, on included cable Operating Temperature 0 ° to 50 °C Storage Temperature -20 ° to 70 °C Humidity 10 to 90% RHNC MTBF >150,000 POH Power Requirements + 5V DC @ 620mA OS Support Dos, Windows 95/98/NT/2000
Ordering Guide FASTCOM232/4ISA \$249 4-port high speed RS-232, DB25, 16850 UART, CD w/drivers, e-manual, & cable	Ordering Guide UCOMM422/4A \$319 16550, auto RTS, manual, software, cable	Ordering Guide UC422PCI/4-55 \$379 16550 card, manual, software, cable UC422PCI/4-65 \$419 16650 card, manual, software, cable UC422PCI/4-75 \$429 16750 card, manual, software, cable

Serial Four & Multi-Port Cards

4-Port Communications Adapter	8-Port ISA Asynchronous Serial I/O	8-Port PCI Bus Asynchronous Serial Adapter
		
CE Datasheet #1070	Datasheet #1732 CE	Datasheet #1733 CE
WINCOMM4	WINCOMM8/C	WINCOMM8/PCI-55
<ul style="list-style-type: none">• Four port RS-232 interface• Individually selectable IRQ level (2-7, 10-12, and 15)• Software available for interrupt buffering• Windows 3.1/95/98/NT/2000 compatible	<ul style="list-style-type: none">• 8 RS-232 ports with full modem control signals• Selectable/sharable interrupts, IRQs 2/9-7, 10-12, & 15• Interrupt status provides efficient interrupt sharing• Bauds rates to 460.8kbps	<ul style="list-style-type: none">• 8-Port RS-232 interface• Each port designed to maximize Dos & Windows 3.1x/95/98/NT communications• 16554 & 16654 UART versions• Support standard PC data rates and "Quad" data rates to 460.8kbps• Supports all PCI interrupts• Communication server COM: ports• High speed ISDN T/A interface• Thin client/network computer/multi-user ports• Interface to printers, plotters, modems, etc.• Data entry terminals/point of sale (POS) systems• Bulletin board systems
<p>The WINCOMM4 provides the PC with four RS-232 asynchronous interfaces to data collection and other devices. This product features extended iXtnd interrupt support for worry-free Windows communications. This interface allows the PC to be used in a variety of industrial and networking applications. Optional software for Dos and Windows communications is available. Due to the requirements of Windows 3.x and OS/2, 16550 UARTs are included.</p>	<p>The Model WINCOMM8/C provides the PC with eight RS-232 asynchronous ports. The product includes extended AT interrupts, extended address range for UNIX/SCO XENIX compatibility, an interrupt status port for greater data throughput, and provides efficient interrupt sharing, Dos, Windows 95/98/NT, QNX and Linux. Additional drivers are not required for Windows® NT, QNX, or Linux. A Windows 95/98 IRQ sharing driver is included.</p>	<p>Each card in the WINCOMM8/PCI series provides eight PCI bus RS-232 asynchronous links for communication servers, point-of-sale (POS) systems, and other data collection devices. The product includes support for all PCI interrupts, extended address range for UNIX/SCO XENIX compatibility, an interrupt status port for greater data throughput, and Dos, Windows 3.1x/95/98/NT compatibility for worry free data communications. Windows 95/98 automatically configures the WINCOMM8/PCI, therefore drivers are not required. Drivers are provided for Windows NT.</p>
Specifications	Specifications	Specifications
Bus ISA	Bus ISA	Bus PCI
UART 16550	UART 16554 (/C & /C-DB9) 16650 (/C-SS)	UART 16C554- WINCOMM8/PCI-55 -59 16C654 - WINCOMM8/PCI-65
Throughput 115.2kbps	Throughput All standard baud rates to 460.8k	Throughput 460.8kbps
I/O Addressing Separate address switch per port	I/O Addressing 64 I/O consecutive locations, or Customized locations using a PAL (special order only)	I/O Addressing Auto select
Interrupts 2-7, 10-12, 15	Interrupts Normal (each port has a single interrupt) Shared (Two or more ports can share the same interrupt as well as multiple boards)	Interrupts Auto select single interrupts
Connectors DB37 to 4 DB25	Connectors DB-25 cable: WINCOMM8/C & WINCOMM8/C-SS DB-9 cable: WINCOMM8/C-DB9	Connectors DB25-P: WINCOMM8/PCI-55 & -65 DB9-P: WINCOMM8/PCI-59
Operating Temperature 0° to 50 °C	Operating Temperature 0° to 50 °C	Operating Temperature 0° to 50 °C
Storage Temperature -20 to 70 °C	Storage Temperature -20° to 70 °C	Storage Temperature -20° to 70 °C
Humidity 0 to 90% RHNC	Humidity 10 to 90% RHNC	Humidity 10% to 90% RHNC
MTBF 150,000-hours	MTBF >150,000 hours (calculated)	MTBF >150,000-hours (calculated)
Power Requirements +5VDC 420mA +12VDC 50mA -12VDC 50mA	Power Requirements +5VDC @ 320mA +12VDC @ 110mA -12VDC @ 130mA	Power Requirements +5 VDC @ 295mA +12 VDC @ 115mA -12 VDC @ 165mA
OS Support Dos/Windows 95/98/NT/2000	OS Support Dos, Windows 95/98/NT	OS Support Dos, Windows 95/98/NT
Ordering Guide	Ordering Guide	Ordering Guide
WINCOMM4 \$279 4-Ch board, cable, software, manual	WINCOMM8/C \$399 8-port card, 16554 UART, DB-25 cable, manual, software	WINCOMM8/PCI-55 \$409 16C554 UART, DB-25P cable, manual, software
WINCOMM4/650 \$299 4-Ch board, cable, software, manual, (16650 UARTs)	WINCOMM8/C-DB9 \$399 8-port card, 16554 UART, DB-9 cable, manual, software	WINCOMM8/PCI-59 \$409 16C554 UART, DB-9P cable, manual, software
	WINCOMM8/C-SS \$449 8-port card, 16650 UART, DB-25 cable, manual, software	WINCOMM8/PCI-65 \$459 16C654 UART, DB-25P cable, manual, software

Eight Port PCI High Speed RS-232 Interface

Datasheet #1836

FASTCOM232/8PCI

- Eight independent RS-232 serial channels
- Durable cables and RFI shielding
- Dos, Windows 95/98/NT/2000 compatible
- 16C854 UART w/128 byte FIFOs
- Compatible w/16550 & 16650
- Standard baud rates in regular mode
- Up to 1.5Mbps in high speed mode (limited by cable type, length, driver/receiver characteristics)
- PCI specification 2.1 compliant
- Auto IRQ & PCI I/O address selection
- Interrupt sharing provided

The FASTCOM232/8PCI adapter is one of the fastest (1.5Mbps), most advanced, 8-port asynchronous RS-232 serial interface in the industry. The FASTCOM232/8PCI features eight discrete RS-232 channels, complete with RTS, CTS, DTR, DSR, DCD and RI control signals.

The advanced FASTCOM232/8PCI features full compatibility with standard 16C550 and 16C650 UARTs, and provides extraordinary 128-byte receive and transmit FIFOs for buffering. This buffering is extremely important when working with high-overhead operating systems such as Windows NT and Windows 95 (drivers supplied). The extra deep FIFOs prevent data loss due to overrun and dramatically improve data throughput in all applications. Our software drivers support all standard baud rates plus a high speed mode capable of up to an amazing 1.5Mbps.

Specifications**Bus**

PCI, Specification 2.1, works past PCI bridge in Plug-n-Play mode

Throughput

Serial-maximum 1.5Mbps (limited by cable type, length, driver receiver characteristics)

I/O Addressing

Plug-n-Play auto selection

Interrupts

Auto selects one interrupt per card on PCI

Connectors

Oct cable included w/eight 25-pin DB male

Operating Temperature

0 ° to 70 °C

Storage Temperature

-20 ° to 70 °C

Humidity

0 to 90% (noncondensing)

MTBF

19.69-years

Power Requirements

+5VDC 600mA (typical)
+12VDC 100mA (typical)
-12VDC 100mA (typical)

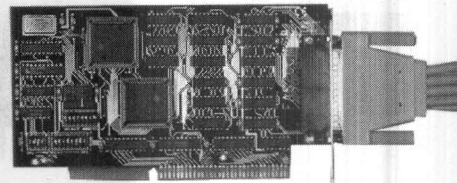
OS Support

Dos, Windows 95/98/NT/2000

Ordering Guide

FASTCOM232/8PCI \$449

PCI board w/drivers, e-manual, & fan-out cable with eight DB25

Eight Port High Speed RS-232 Interface

Datasheet #1835

FASTCOM232/8ISA

- Eight independent RS-232 serial channels
- Durable cables and RFI shielding
- Dos, Windows 95/98/NT support
- 16C854 UART w/128 byte FIFOs
- Compatible w/16550 & 16650
- Standard baud rates in regular mode
- Up to 1.5Mbps in high speed mode (limited by cable type, length, driver/receiver characteristics)
- User selectable address/IRQ
- Interrupt sharing provided

The FASTCOM232/8ISA adapter is one of the fastest (1.5Mbps), most advanced, eight-port asynchronous ISA RS-232 serial interface in the industry. The FASTCOM232/8ISA features eight discrete RS-232 channels, complete with RTS, CTS, DTR, DSR, DCD and RI control signals.

The advanced FASTCOM232/8ISA features full compatibility with standard 16C550 and 16C650 UARTs, and provides extraordinary 128-byte receive and transmit FIFOs for buffering. This buffering is extremely important when working with high-overhead operating systems such as Windows NT and Windows 95/98 (drivers supplied). The extra deep FIFOs prevent data loss due to overrun and dramatically improve data throughput in all applications. Our software drivers support all standard baud rates plus a high speed mode capable of up to an amazing 1.5Mbps. (Note: The RS-232 data rates are limited by cable length, noise, and driver/receiver characteristics.)

Specifications**Bus**

ISA, 16-bit

Throughput

Serial-maximum 1.5Mbps (limited by cable type, length, driver/receiver characteristics)

I/O Addressing

Base address selected by user

Interrupts

User Selectable shared interrupt

Connectors

Oct cable included with eight 25-pin DB males

Operating Temperature

0 ° to 70 °C

Storage Temperature

-20 ° to 70 °C

Humidity

0 to 90% (noncondensing)

MTBF

20.97-years

Power Requirements

+5VDC 600mA (typical)
+12VDC 100mA (typical)
-12VDC 100mA (typical)

OS Support

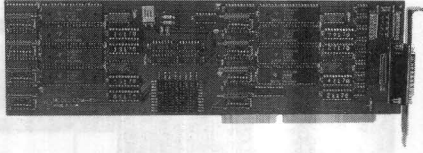
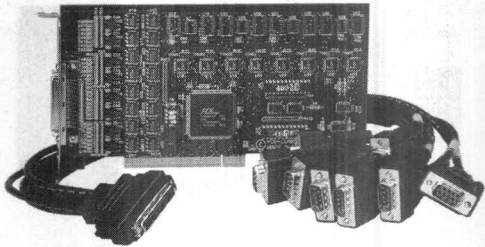
Dos, Windows 95/98/2000/NT

Ordering Guide

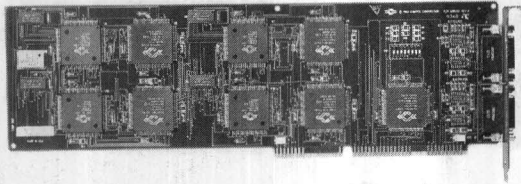
FASTCOM232/8ISA \$399

ISA board w/drivers, e-manual, & fan-out cable w/eight DB25

Serial Multi-Port Cards

8-Port RS-485 Interface	8-Port RS-422 & RS-485 Serial Adapters
 <p>Datasheet #1877</p> <p>CE</p>	 <p>Datasheet #1736</p> <p>CE</p>
COM485/8	PCI-COM422 & 485/8 Series
<ul style="list-style-type: none"> • Eight 2-wire RS-485 ports • 16550 UARTs • On board RS-485 auto enable circuit • Dos, Windows 95/98/NT compatible • 8 DB9 male shielded fan-out cable 	<ul style="list-style-type: none"> • 8 RS-422 or RS-485 ports • Baud rates up to 460.8kbps • Supports full-duplex & half-duplex communications (PCI-COM485/8 half-duplex only) • Supports auto-RTS in Windows on RS485 model • 8 DB9 male fan-out cable
<p>The COM485/8 Serial Interface Card was designed for multichannel, multi-point communications. The card is full size and can only be installed in a full length slot. The COM485/8 supports RS-485 modes that use differential balanced drivers for increased range and noise immunity. With the Model COM485/8, a PC can communicate with up to 256 devices. The number of devices served on a single line can be expanded by use of repeaters. The COM485/8 supports half-duplex communications with a 2-wire connection.</p>	<p>The Model PCI COM422/8 supports RS- 422 communications and the Model PCI-COM485/8 support RS-485 communications. Both cards utilize differential balanced drivers for long range and noise immunity.</p> <p>The Model PCI-COM422/8 has the capability to add load resistors to terminate the communication lines. RS422 communications requires that a transmitter supply a bias voltage to ensure a known inzerolt state. Also, receiver inputs at each end of the network should be terminated to eliminate it ringing. The PCI-COM422/8 supports biasing by default and supports termination by jumpers on the card.</p> <p>RS-485 operation, using the Model PCI-COM485/8, involves switchable transceivers and the ability to support multiple devices on a single part line. The RS-485 specification defines a maximum of 32 devices on a single line. The number of devices served on a single line can be expanded by the use of repeaters such as the Model A2000. The PCI-COM485/8 also supports biasing by default and supports termination by jumpers on the card.</p>
<p>Specifications</p> <p>Bus ISA</p> <p>UART 16550</p> <p>Throughput 50 to 115,200kpbs</p> <p>I/O Addressing 100-3F8 switch selectable</p> <p>Interrupts 2-7, 10-12, 14 or 15</p> <p>Connectors Fanout cable, 8 DB9 male connectors</p> <p>Operating Temperature 0 ° to 60 °C</p> <p>Storage Temperature -50 ° to 120 °C</p> <p>Humidity 5 to 95%, noncondensing</p> <p>MTBF 19.97 years (calculated)</p> <p>Power Requirements +5VDC @ 125mA, typ. ±12VDC @ 5mA, typ. 750mW total power consumption</p> <p>OS Support Windows 95/98/NT</p>	<p>Specifications</p> <p>Bus PCI</p> <p>UART 16550</p> <p>Throughput 460.8kbps</p> <p>I/O Addressing Continuously mappable within 0000 to FFFFh range of PCI bus addresses</p> <p>Interrupts Auto Selection</p> <p>Connectors Fanout cable with DB-9P connections</p> <p>Operating Temperature 0 ° to 60 °C</p> <p>Storage Temperature -50 ° to 120 °C</p> <p>Humidity 5 to 95% RHNC</p> <p>MTBF 41.21 years (calculated)</p> <p>Power Requirements +5VDC @ 125mA +12VDC @ 5mA -12VDC @ 5mA</p> <p>OS Support Windows 95/98/NT</p>
<p>Ordering Guide</p> <p>COM485/8 \$349</p> <p>Manual, software, cable</p>	<p>Ordering Guide</p> <p>PCI-COM422/8 \$469</p> <p>8-port 422 card, software, manual, cable</p> <p>PCI-COM485/8 \$469</p> <p>8-port 485 card, software, manual, cable</p>

Multi-Port Adapters



Datasheet #1100



Rocketport Family

- Throughput up to 460kbps simultaneously (RS-422 mode)
- 4, 8, 16, & 32 port ISA models
- 8 & 16 port PCI models
- Onboard 36MHz processor for each of the 8 ports
- I/O mapped like a non-intelligent card
- Install up to four boards in one system
- Supplied with drivers for Windows & Novell

Specifications

Bus

PCI

UART

16550

Throughput

RS-232: 50-115.2Kb

RS-422: 50-230.4Kb

I/O Addressing

ISA 100-3C3

DIP switches

PCI - auto select

Interrupts

1 per board or none

Connectors

Panels DB25 female

Cables

OCT, Quad DB9, DB5 male

Operating Temperature

0 ° to 40 °C

Storage Temperature

-20 ° to 85 °C

Humidity

8 to 80% RHNC (system on)

MTBF

4J 85.3 years

8J 84.4 years

4/8 78.5 years

16 56.4 years

32 33.6 years

OCT 28.8 years

QAD 28.8 years

Power Requirements

+5 VDC +12 VDC -12 VDC

4J 350mA 100mA 160mA

8J 350mA 100mA 160mA

4 700mA 65mA 80mA

8 700mA 105mA 115mA

16 950mA 210mA 330mA

32 1.9A 420mA 660mA

OS Support

Dos, Windows 3.1/95/98/NT/2000,

OS/2, QNX, SCO XENIX, SOLARIS,

FOSSIL, UNIX, LINUX

Ordering Guide

PCI Models

ROCKETPORT32PCI \$1019

32-port PCI (Qty.2, 16-port panels req.)

ROCKET/PCI-16 \$479

16-port PCI (16-port panel option req.)

ROCKET/PCI-8 \$289

8-port PCI (8-port panel option req.)

PCI/OCT-DB25 \$459

8-port PCI w/RS-232 fan-out cable,
DB25 male

PCI/OCT-DB9 \$459

8-port PCI w/RS-232 fan-out cable,
DB9 male

PCI/OCT-422 \$499

8-port PCI w/RS-422 fan-out cable DB9 male

PCI/QUAD-DB25 \$369

4-port PCI w/RS-232 fan-out cable,
DB25 male

PCI/QUAD-DB9 \$369

4-port PCI w/RS-232 fan-out cable,
DB9 male

PCI/QUAD-422 \$399

4-port PCI w/RS-422 fan-out cable,
DB9 male

ROCKET/PCI-4J \$249

4-port PCI RS-232 with RJ45 connectors

Accessory Cables

(connects board to interface panel)

RPCABLE/6FT \$119

6-foot cable

RPCABLE/10FT \$129

10-foot cable

ISA Models

ROCKETPORT32 \$869

32-port ISA (Qty.2, 16-port panels req.)

ROCKETPORT16 \$459

16-port ISA (16-port panel option req.)

ROCKETPORT8 \$289

8-port ISA (8-port panel option req.)

ROCKETPORT/OCT \$379

8-port ISA w/RS232 fan-out cable, DB25 male

ROCKETPORT8J \$319

8-port ISA RS-232 with RJ11 connectors

ROCKETPORT4 \$279

4-port ISA (4-port panel option req.)

ROCKETPORT/QAD \$299

4-port ISA w/RS-232 fan-out cable, DB25 male

ROCKETPORT4J \$219

4-port ISA RS-232 with RJ45 connectors

Interface Panels

(all have DB25 female connectors)

RPI16-232 \$379

16-port RS232 panel only

RPI16-232/422 \$429

16-port RS232/422 panel only

RPIRM16/RJ45 \$529

16-port rack mount panel, RJ45 connectors,
RS232, 10-foot host cable (1U rack height)

RPI16S-232/422 \$599

16-port RS232/422 panel with surge protection

RPI8-232 \$279

8-port RS232 panel only

RPI8-232/422 \$319

8-port RS232/422 panel only

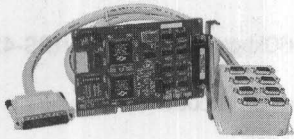
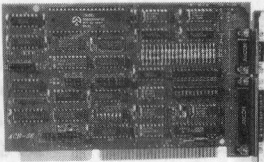
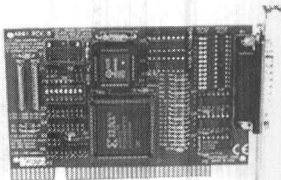



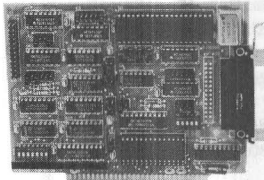

RPI8S-232/422 \$409

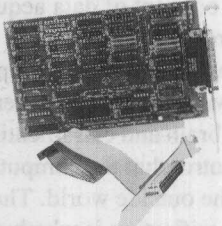

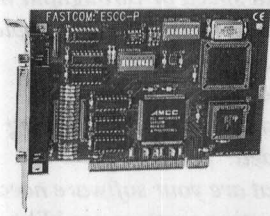

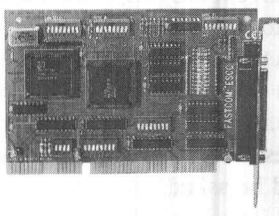

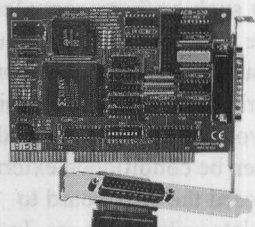

8-port RS232/422 panel with surge protection

RPI4-232/422 \$179

4-port RS232/422 panel only

Multi-Port Adapters & Sync Communication Cards

Six RS-232 Ports & Two RS-485/RS-232 Ports	Sync/Async RS-232/V.35	Sync/Async Single Port RS232/422/485/530
		
Datasheet #1655 	Datasheet #1332 	Datasheet #1084 
ROCKETPORT/485	ACB56	ACB2/EX
<ul style="list-style-type: none"> Up to four boards installed RS-485 mode includes auto-switching transceivers RS-232 ports contain +5VDC on pin 9 I/O Mapped - no memory to configure 1024 Byte receive buffers Each port can support up to 460kbps simultaneously 	<ul style="list-style-type: none"> Single channel Sync/Async w/CSU/DSU control port DMA supports data rates greater than 1Mbps Full duplex DMA transfer capability V.35 Interface with full modem control signals Clocks can be inverted for unique installations Software programmable baud rates Software developer's tool kit with source code 	<ul style="list-style-type: none"> Sync/Async operation using 85230-8 SCC Selectable port address, IRQ level, & DMA channel Supports TD, RD, RTS, CTS, DSR, DCD, DTR, RXC, TXC & TSET signals External clock jumper for transmit clock SDLC, HDLC & X.25 compatible Standard EIA-530 pin-out on DB-25P Up to 1.8432 Mbps using DMA Software tool kit including Windows drivers, applications
<p>The new ROCKETPORT/485 provides eight high speed serial ports. The first two ports can be set for either RS-232 or RS-485. The last six ports are RS-232 only. The RS-485 mode incorporates automatic data transmit and receive switching. The auto switching feature prevents data loss that can occur when using the RS-485 communications interface under network operating systems such as Windows® NT or NetWare.</p>	<p>The model ACB56 provides the PC with two communication ports. One is a single Sync/Async channel that is jumper selectable as RS-232 or V.35, and a single Asynchronous RS-232 port. The Asynchronous RS-232 port can be used to control and monitor a CSU/DSU. The Asynchronous port can also be used as an ISDN interface.</p>	<p>Ordering Guide ACB2/EX \$199</p>
<p>Specifications</p> <p>Bus ISA</p> <p>Throughput £ 50 to 460.8kbps £ (Maximum rate depends on hardware and OS)</p> <p>I/O Addressing 8 to 32</p> <p>Interrupts 3-5, 9-12, 15 or none</p> <p>Connectors 8 DB9 panel</p> <p>Operating Temperature 0 ° to 70 °C</p> <p>Storage Temperature -65 ° to 150 °C</p> <p>Humidity 8 to 80% RHNC</p> <p>MTBF 20.5-years</p> <p>Power Requirements +5VDC @ 350mA +12VDC @ 100mA -12VDC @ 160mA</p> <p>OS Support Dos, Windows 3.1/95/98/NT/2000, OS/2, QNX, SCO XENIX, SOLARIS, FOSSIL, UNIX, LINUX</p>	<p>Specifications</p> <p>Bus ISA</p> <p>UART 85230-8SCC</p> <p>Throughput 1.2288Mbps</p> <p>I/O Addressing 8 I/O Dip switch 238-3EF</p> <p>Interrupts AT Interrupts</p> <p>Connectors (1) DB-25 male, (1) DB-9 male</p> <p>Operating Temperature 0 ° to 50 °C</p> <p>Storage Temperature -20 ° to 70 °C</p> <p>Humidity 0 to 90% RHNC</p> <p>MTBF Greater than 150,000-hours (calculated)</p> <p>Power Requirements +5VDC @ 420mA ±12VDC @ 50mA each</p> <p>OS Support Windows 95/98/NT/2000 HDLC, SDLC NT Async Driver</p>	<p>ACB3</p> <p></p> <p>Datasheet #1030 </p> <p>Dual Port Sync/Async RS232</p> <ul style="list-style-type: none"> Two channels of Sync/Async communications using 85230-8 SCC DMA supports data rate greater than 1Mbps Selectable port address, IRQ Level (2, 3, 4, 5) and DMA channel 1 or 3 RS-232 interface with full modem control Supports TD, RD, RTS, CTS, DSR, DCD, DTR, TXC, RXC, TT signals Jumper options for clock source and I/O Onboard EPROM socket (16KB or 128KB) Supports protocols: SDLC, HDLC, X.25, MONOSYNC, BISYNC & ASYNC
<p>Ordering Guide ROCKETPORT/485 \$519 8-port card, manual, & software</p>	<p>Ordering Guide ACB56 \$209 Card, manual, & software</p>	<p>Ordering Guide ACB3 \$279 ACB3/SP \$169</p>

Dual Port RS422/530/485	High Speed Sync/Async RS-422/ RS-485 Adapter	High Speed RS-422/RS-485 Sync/ Async Communications Adapter
 <p>Datasheet #1029 </p>	 <p>Datasheet #1608 </p>	 <p>Datasheet #1493 </p>
<p>ACB4</p> <ul style="list-style-type: none"> • RS-422/530/485 communications • 2-Ch of Sync/Async communications using 85230-8 SCC chip • Full modem control RS530 • Selectable address/IRQ • DMA supports data rate greater than 1Mbps • T1 and F-T1 pipeline interface • S/W programmable baud rate • Supports TD, RD, RTS, CTS, DSR, DCD, DTR, TXC, RXC, LL, RL, TM signals • Software tool kit including Windows drivers, application and sample source code 	<p>FASTCOMESCC/P</p> <ul style="list-style-type: none"> • Supports RS-422/RS-485 • High speed, up to 10MB/sec • Supports HDLC, SDLC, ISDN Lap D, & X.25, Async & Bisync • Collision resolution • 64-Byte FIFOs each direction 	<p>FASTCOM/ESCC</p> <ul style="list-style-type: none"> • High speed, up to 10 MB/sec in bursts • Supports HDLC, SDLC, ISDN LAP D, and X.25 LAP B, Async and Bisync • 64 Byte FIFOs for both transmit & receive • True 16-Bit data path to FIFOs • 8 & 16-Bit DMA channel selections
<p>Ordering Guide</p> <p>ACB4 \$299</p>	<p>The new Model FASTCOM/ESCC-P adapter, takes the power of the most advanced synchronous/asynchronous adapter, the FASTCOM/ESCC and combines it with the high speed PCI bus. By utilizing the high speed PCI bus architecture, we are able to take full advantage of the advanced Seimens ESCC chip. The card still provides clock rates of up to 10MB per second. The FASTCOM/ESCC-P offer the flexibility inherent in a dual channel adapter, with each channel individually configurable to use HDLC/SDLC, async, or bisync protocols, and features a high speed RS-422/RS-485 interface conforming to the ANSI/EIA/TIA-530-A-1992 configuration (RS-530).</p>	<p>The new FASTCOM/ESCC adapter is the most advanced synchronous/asynchronous communications adapter in the industry, with clock rates of up to 10MB per second, but is as easy to install and use as a standard PC serial adapter. The FASTCOM/ESCC also offers the flexibility inherent in a dual channel adapter, with each channel individually configurable to use HDLC/SDLC, async, or bisync protocols. The card features a high speed RS-422/RS-485 interface conforming to ANSI/EIA/TIA-530-A-1992 configuration (RS-530).</p>
<p>Dual Port RS422/530/485 AT/Full Pipeline</p>	<p>Specifications</p> <p>Bus PCI</p> <p>UART 82532 ESCC</p> <p>Throughput 10Mbps/sec</p> <p>I/O Addressing Auto Selected</p> <p>Interrupts Single IRQ auto selected</p> <p>Connectors ANSI/EIA/TIA-530-A-1992</p> <p>Operating Temperature 0° to 70 °C</p> <p>Storage Temperature -20° to 70 °C</p> <p>Humidity 0 to 90% RHNC</p> <p>MTBF 26 years</p> <p>Power Requirements +5VDC @ 300mA typical</p> <p>OS Support C++ class library for Dos Kernel Mode driver for Windows NT (Q1'97) Windows 2000 Linux</p>	<p>Specifications</p> <p>Bus ISA</p> <p>UART 82532 ESCC</p> <p>Throughput 10Mbps/sec (limited by ISA Bus & OS used)</p> <p>I/O Addressing Switch selectable full I/O range</p> <p>Interrupts AT Interrupt switch selectable</p> <p>Connectors ANSI/EIA/TIA-530-A-1992 DB25 Male</p> <p>Operating Temperature 0° to 70 °C</p> <p>Storage Temperature -20° to 70 °C</p> <p>Humidity 0 to 90% RHNC</p> <p>MTBF 26-years</p> <p>Power Requirements +5VDC @ 300mA (typical)</p> <p>OS Support C++ class library for Dos VxD/DLL interface for Windows 3.1 Kernel Mode driver for Windows NT (Q1'97) Windows 2000 Linux</p>
 <p>Datasheet #1028 </p>	<p>Ordering Guide</p> <p>FASTCOMESCC/P \$449</p> <p>Board, manual, software, cable</p>	<p>Ordering Guide</p> <p>FASTCOM/ESCC \$399</p> <p>Board, manual, software, cable</p>
<p>ACB4-AT</p> <ul style="list-style-type: none"> • All features of ACB4 plus full duplex transfer capability on both channels • IRQ Levels 2-5, 7, 10-12, & 15 • DMA Channels 0, 1, 2 or 3 • Jumper options for clock source and I/O mode • Terminal count interrupt • DMA supports data rate greater than 1Mbps • Software tool kit including Windows drivers, application and sample source code 		
<p>Ordering Guide</p> <p>ACB4-AT \$319</p> <p>ACB4-AT/16MHZ \$419</p>		

Specifying I/O Solutions

ICS Advent has one of the largest selections of I/O boards and products in the industry. To assist you in selecting the I/O board or product to fit your application needs, a series of information questions should be asked.

1. What voltages are needed?

For digital cards, this can be TTL, AC/DC, 5V, 12V, 24V, 120V, etc. For Analog Inputs or Outputs, this can be the ranges of +/- 10V, 0-5V, etc. or single-ended vs. differential.

2. What Interface to the PC is needed such as ISA, PCI, PCMCIA, Serial, or Ethernet?

3. How many inputs or outputs?

4. What resolution is needed for analog 8, 12, 14 or 16-bits?

5. What speed or throughput needed (analog mostly) 100k samples/sec, 1M samples/sec?

6. What signal conditioning, isolation or external wiring needed?

7. What are your software needs?

Operating systems used like Windows 98/NT/2000/ME, Linux or data acquisition software package used or writing own software (development kit).

After answering these questions, your ICS Advent Sales Engineer can help in the selection of the correct I/O product for your application.

I/O Application Concepts

The first concept of data acquisition and control is identifying the classification of a sensory input in the real world to the computer's world or brain and classification of actual control that the computer will take on the outside world. The first major classification is whether an external event is analog or digital, the two primary groups of I/O. The third most common group is motion control, which combines characteristics of both Analog and Digital into the specialized world of control and monitoring of motors that move external objects. Our specialty boards and products cover specific needs in the world with specific board products.

Analog Application Concepts

Unlike, the digital world, the computer must have the analog world changed into digital terms for it to process data, and in turn, must change its digital commands into an analog world. This is done through A/D chips for inputs and D/A chips for outputs.

The accuracy of this conversion is measured as Resolution. Resolution is defined as the number of divisions into which a full-scale analog range can be divided to an approximate analog voltage. Typically, data acquisition boards are available from 8 to 16 bits of resolution, with 12 bit being the most popular due to the fact the higher the resolution, the greater the cost. Also, resolution is also a trade off with throughput in addition to cost. The

formula for knowing the accuracy of voltage measurement is the voltage range divide by 2 to the power (bits of resolution). For example: the popular 0-10V range with the lowest bit resolution of 8 would be $10/2^8$ to the eighth or $10/256 = .039V$. This would mean that with an 8-bit board, you would get increments of .039V between 0-10V. On a 12-bit board it would be $10/4096 = .0024V$ between increments between 0-10V.

The other vital specification in Analog Input boards is throughput measured in samples per second. A 100K samples per second card can measure 100K samples per second on one channel. On an 8-Ch board, the real throughput must be the sampling rate divided by the number of channels or 100K divided by 8 which would be 12.5K samples per

second on each of the eight channels.

Finally, like the digital boards, the outside world must be conditioned. Sensors such as thermocouples to measure temperature or transducers to measure pressure or flow convert real world data into electrical signals. These voltage or current signals must then be conditioned externally or on board the A/D board to appropriate voltage ranges. In the case of the thermocouples, the signal may be amplified from its mV range to facilitate an A/D board with 0-5 or 0-10VDC ranges only. ICS Advent has A/D boards with onboard and offboard signal conditioning for your every need. Call your Sales Engineer to help in choosing the I/O product for your application.

Digital Application Concepts

A digital event is a real world measurement that has two opposite mutually exclusive states. That can be YES/NO, ON/OFF, OPEN/CLOSE, POWER/ NO POWER. This binary measurement is the world the computer is in anyway, so the only requirement is conditioning the binary event in the outside world to the computer's binary world which is typically TTL or 0-5V. This is why a computer's primary power supply output is 5V. It is important to remember that in the real world that a binary event is not necessarily 5V. A 12V or not, 24V or not, 110VAC or not, are all binary events and should not be confused with measuring analog voltages. The typical digital input can be conditioned either on board or externally. For example, an external DC input conditioning module with its two inputs usually measures the differential between ground and some voltage like a multimeter and sends a TTL transition back to the TTL digital input card when power is present or not. The module usually has some lower threshold like 3 volts to differentiate between binary states. In an AC input solid state module, this lower threshold may be as high as 90VAC so as to indicate power has fallen below a respectable level. Digital outputs typical take the form of various types of relays either electromechanical or solid state. The relays used depends on the needs of the applications. A solid state is used when rapid and frequent switching of power is needed or for reliability and larger amperage switching but its weakness is leakage which maybe undesirable in some applications. Electromechanical is truly on or off (dry contact) but has issues of

longevity and on some types "bounce" at speed.

Electromechanical relays may have two or three connections depending on features of the specific relay. For example, while a FORM A (SPST) relay may have a contact for common and normally-open, a FORM C (SPDT) will have a contact for common, normally-open and normally-closed. Reed relays are popular small electromechanical relays for low power applications that can be put in a small space either on board or off board. For relay power switching above 3 amps it is recommend that double relay system be used. For example, a simple 5VDC output relay could turn on a large 15 amp AC four pole solid state relay used to turn on/off large pieces of equipment. When 5VDC is applied on DC two contacts the two contacts for AC is closed to allow large electrical line to be controlled. This provides full isolation of large AC lines being controlled by the computer from the computer itself. Solid state relays typically just have two connections per relay where the power side of DC or high leg of AC are routed through one connection and out the second connection for the control of power. The exception to this is in FET switches where external power is isolated through output to provide channel to channel isolation.

Finally, a counter is simply a computer chip counting binary digital states. For example, a TTL pulse emitted by a sensor when an object passes over a conveyor line location is simply a single digital binary event. This TTL pulse can be routed back to a plug in digital counter board which simply stores all of the transitions between two points in time.

Motion Control and Specialty Products

Motion control is a group all its own and includes primarily stepper and Servo motor control plus Quatrature encoder input board. The "Designing with Motion Handbook" available from ICS Advent can help in specifying your motion application needs or you can call your Sales Engineer for assistance.

Specialty products are a catch all category of I/O products that don't fit in the standard large groups. Whether you need a watchdog board to reboot your computer when it locks up or network time reference board to have more accurate time in your PC or a bus expansion board set, ICS Advent has various I/O boards and products to fit your needs.

Configure your system online at
www.icsadvent.com or
 call one of our sales engineers
 for assistance to order your system
888-294-4561

I/O Card Selection Table

Number of Channels											
	Page Number	Datasheets	Bus	Resolution	SE	DF	Conversion	Throughput	Programmable Gains/Ranges	Bipolar	Unipolar
Analog Input Boards											
AD12-8	32	1121	ISA	12-bit	8	-	25μs	30k	±5,	100-10	-
AD101600	32	1378	AT	12-bit	16	8	10us	100k	Y	±5, 10	0-10
AI016-P	32	1340	ISA	12-bit	16	8	15μs	50k	-	±.5,1,2,5,5,10	0-1,2,5,10
AI016F-P	32	1340	ISA	12-bit	16	8	8.5us	100k	-	-	-
AI08G-P	33	1588	ISA	12-bit	8	8	25μs	20k	Y	±.01,.05,.5,5,10	0-2,.1,1,10
AI08-P	33	1589	ISA	12-bit	8	-	25us	20k	-	±5	-
AT16-P	33	1518	External	-	-	16	-	-	Y	-	-
LVDT8	33	1278	External	-	-	8	-	-	-	-	-
ML16-P	34	1741	ISA	8-bit	16	8	60μs	16.67k	Y	±5	-
ML8-P	34	1154	ISA	8-bit	8	-	20us	-	-	±5	-
MS1601-U	34	1743	ISA	14-bit	16	8	40μs	20k	Y	±10.24	-
PAD128	36	1884	PCMCIA	12-bit	8	4	-	140k	-	±5, 10	0-.15
PC-30 Family	35	1499	AT	12-bit	16	8	-	100k	-	±5, 10	-
PC-73	35	1408	ISA	12-bit	-	8	33us	30k	-	±4.095	-
PCI-AI/1216	36	1742	PCI	12-bit	16	8	8μs	100K	-	±2.5,5,10	0-2.5,5,10
PD2/16-64	36	1802	PCI	12,14,16	16 & 64	8 & 32	-	50k-2MHz	Y	±5,10	0-5,10
A0B2-P	39	1155	ISA	-	-	-	-	-	-	-	-
A0B6-P	39	1642	ISA	-	-	-	-	-	-	-	-
A0B12/C	40	1517	AT	-	-	-	-	-	-	-	-
A0B8/12	40	1280	AT	-	-	-	-	-	-	-	-
A0B16/12	40	1280	AT	-	-	-	-	-	-	-	-
A0B8/16	40	1122	At	-	-	-	-	-	-	-	-
A0B16/16	40	1122	AT	-	-	-	-	-	-	-	-
PCI-A0B2	39	1885	PCI	-	-	-	-	-	-	-	-
PCI-A0B4	39	1885	PCI	-	-	-	-	-	-	-	-
PCI-A0B6	39	1885	PCI	-	-	-	-	-	-	-	-
PCI-A0B8/12	40	1886	PCI	-	-	-	-	-	-	-	-
PCI-A0B16/12	40	1886	PCI	-	-	-	-	-	-	-	-
PD2-A0	38	1804	PCI	-	-	-	-	-	-	-	-

	Page Number	Datasheet	Bus/Interface	NO of I/O lines	Relay Type	Output Sink/ Relay Current	Isolation	MS-DOS	WIN 95/98	WIN NT	WIN 2000	Utilities Disk
Digital TTL Boards												
DIO24H	42	1356	ISA	24 I/O	-	64mA	-	x	x	x	x	DIO24H
DIO24H-PCI	43	1887	PCI	24 I/O	-	64mA	-	x	x	x	x	
DIO24H-PCI												
DIO24-P	42	1649	ISA	24 I/O	-	1.7mA	-	x	x	x	x	DIO24-P
DIO48S/AT-P	43	1125	AT	48 I/O	-	15mA	-	x	x	x	-	DIO48S/AT-P
PCDIO Family	44	1143	AT	24-216 I/O	-	24mA	-	x	x	x	x	PCDIO Family
PCI-DIO24 Family	44	1744	PCI	24 I/O	-	24mA	-	x	x	x	x	PCI-DIO24 Family
PCI-DIO24S	44	1730	PCI	24 I/O	-	24mA	-	x	x	x	-	PCI-DIO24S
PCI-DIO48 (48S)	44	1730	PCI	48 I/O	-	24mA	-	x	x	x	-	PCI-DIO48 (48S)
PCI-DIO72-120	44	1727	PCI	72-120 I/O	-	24mA	-	x	x	x	x	PCI-DIO72-120
Digital Isolated & Relay Boards												
16ISO	49	1003	ISA	16 ISO IN	-	-	x	x	x	x	x	16ISO
16REL	49	1003	ISA	16 Relays	Reed	10VA	-	x	x	x	x	16REL
32REL-B	47	1130	ISA	32 Relays	Reed	10VA	-	x	x	x	x	32REL-B
DIO16	48	1044	ISA	8ISO/8R	Reed	10VA	x	x	x	x	x	DIO16
DIO32B	50	1092	ISA	16ISO/16R	Reed	10VA	x	x	x	x	x	DIO32B
DIO16,32,48I	47	1176	AT	16-48 ISO	-	-	x	x	x	x	x	DIO16,32,48I
DIO8-P	48	1145	ISA	8ISO/8R	E/M	2A	x	x	x	x	x	DIO8-P
PCI-DIO8	48	1785	PCI	8ISO/8R	E/M	2A	x	x	x	x	x	PCI-DIO8
ID016(32/48)	47	1553	ISA	16/32/48	FET S/S	1A	x	x	x	x	x	ID016(32/48)
PCI-16REL	49	1851	PCI	16 Relays	Reed	10VA	-	x	x	x	x	PCI-16REL
PCI-DIO16	48	1849	PCI	8ISO/8R	Reed	10VA	x	x	x	x	x	PCI-DIO16
PCI-DIO32	50	1862	PCI	16ISO/16R	Reed	10VA	x	x	x	x	x	PCI-DIO32

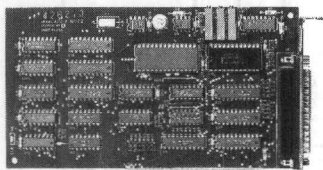
O/I

Gains	Channels	Bipolar	Unipolar	Resolution	Setting time	Counter/Timers	NO of I/O lines	Output Sink/ Relay Current	MSDOS	WIN95/98	WINDOWS NT	WIN 2000	BASIC	C	UTILITIES	
Analog Input Boards																
-	-	-	-	-	-	3	16	24mA	x	x	x	x	x	x	x	AD12-8
1,10,100,1000	2	±2.5,5,10	0-5,10	12bit	5μs	3	4I/4O;24I/O	8mA	x	x	x	x	x	x	x	AD10160
5,1,2,5,10	2	-	0-5	12bit	2μs	3	4I/4O	8mA	x	x	x	x	x	x	x	AI016-P
-	-	-	-	-	-	-	-	-	x	-	-	-	-	-	-	AI016F-
-	-	-	-	-	-	3	4I/4O	8mA	x	x	x	x	x	x	x	AI08G-P
-	-	-	-	-	-	3	4I/4O	8mA	x	x	x	x	x	x	x	AI08-
-	-	-	-	-	-	-	-	-	x	x	x	x	x	x	x	AT16-P
-	-	-	-	-	-	-	-	-	x	x	x	x	x	x	x	LVDT
0-10	2	±10	-	8bit	30μs	3	8I/8O	24mA	x	x	x	x	x	x	x	ML16-P
-	-	-	-	-	-	-	3I/4O	8mA	x	x	x	x	x	x	x	ML8-
1,2,4...1024	-	-	-	-	-	-	-	-	x	x	-	-	x	x	x	MS1601-U
-	-	-	-	-	-	-	16 I/O	1.7mA	x	x	x	x	x	x	x	PAD12
1,10,100,1000	4	±5, 10	0-10, 13	12bit	10μs	3	24	1.7mA	x	x	x	-	x	x	x	PC-30 Family
1,100,200,500	-	-	-	-	-	-	-	-	x	x	-	-	x	x	x	PC-7
-	-	-	-	-	-	3	4I/O,4 O	-	x	x	x	x	x	x	x	PCI-AI/1216
1,10,100,1000	2	±10	-	12bit	10μs	3	16	64mA	x	x	x	x	x	x	x	PD2/16-64
Analog Output Boards																
-	2	±5,10	0-5,10	12bit	4μs	-	-	-	x	x	x	x	x	x	x	A0B2-P
-	6	±2.5,5,10	0-5,10	12bit	25μs	-	24I/O	1.7mA	x	x	x	x	x	x	x	A0B6-P
-	12	±5,10	-	12bit	2μs	-	-	-	x	x	x	x	x	x	x	A0B12/C
-	8	±2.5,5,10	0-2.5,5,10	12bit	8μs	-	-	-	x	x	x	x	x	x	x	A0B8/12
-	16	±2.5,5,10	0-2.5,5,10	12bit	8μs	-	-	-	x	x	x	x	x	x	x	A0B16/12
-	8	±5,10	0-5,10	16-bit	8μs	-	-	-	x	x	x	x	x	x	x	A0B8/16
-	16	±5, 10	0-5,10	16bit	8μs	-	-	-	x	x	x	x	x	x	x	A0B16/16
-	2	±2.5,5,10	0-2.5,5,10	12bit	8μs	-	-	-	x	x	x	x	x	x	x	PCI-A0B2
-	4	±2.5,5,10	0-2.5,5,10	12bit	8μs	-	-	-	x	x	x	x	x	x	x	PCI-A0B4
-	6	±2.5,5,10	0-2.5,5,10	12bit	8μs	-	-	-	x	x	x	x	x	x	x	PCI-A0B6
-	8	±2.5,5,10	0-2.5,5,10	12bit	8μs	-	-	-	x	x	x	x	x	x	x	PCI-A0B8/12
-	16	±2.5,5,10	0-2.5,5,10	12bit	8μs	-	-	-	x	x	x	x	x	x	x	PCI-A0B16/12
-	18,16,32	±10	-	16bit	10μs	3	8I/8O	64mA	x	x	x	x	x	x	x	PD2-A0

	Page Number	Datasheet	Interface	NO of I/O lines	Output Sink/ Relay Output	MS-DOS	WIN 95/98	WIN NT	WIN 2000	Utilities Disk	
Counter Timers											
DCC20-P	41	1179	AT	20CT	-	x	x	x	-	x	DCC20-P
DCC10-P	41	1179	AT	10CT	-	x	x	x	-	x	DCC10-P
DCC5-P	41	1179	ISA	5CT	-	x	x	x	-	x	DCC5-P
PCIDCC20-P	41	1738	PCI	20CT	-	x	x	x	-	x	PCIDCC20-P
PCIDCC10-P	41	1738	PCI	10CT	-	x	x	x	-	x	PCIDCC10-P
PCIDCC5-	41	1738	PCI	5CT	-	x	x	x	-	x	PCIDCC5-
PIOD24	42	1649	PMCIA	24I/O 3CT	5 LSTTL	x	x	x	x	x	PIOD24

Analog Input Boards

8 Channel, 12-Bit MF A/D, Expandable



Datasheet #1121



AD12-8

- Supports programmable gain feature of AT16-P in Labtech Notebook
- 8 single-ended Analog inputs
- Supports up to 128 differential inputs when used with AT16-P 12-bit resolution
- 16 lines of Digital I/O, (8 as I/O, 8 output)
- Onboard counter/timer for event counting

The Model AD12-8 is an 8-Ch, 12-bit Analog-to-Digital converter and Counter/Timer card. The card is capable of up to 40,000 conversions per second. Inputs to the A/D are single-ended with common ground and can withstand ± 30 VDC overload and transients of several hundred volts. All inputs are fail-safe (open) when power is off.

Specifications

Bus ISA	Operating Temperature 0 ° to 60 °C
Channels 8 SE	Storage Temperature -40 ° to +100 °C
Resolution 12-bit binary	Humidity 0 to 90% RHNC
Input Ranges ± 5 VDC, ± 10 VDC or 0V to +10VDC	Connector DB37P
Throughput 40,000 conversions per/sec max.	MTBF 32.87-years (calculated)
Power Requirements +5VDC @ 390mA +12VDC @ 10mA -12VDC @ 10mA	OS Support Dos, Windows 95/98/NT/ 2000

Ordering Guide

AD12-8 \$309

Card, manual, software

Accessories

AT16-P \$375

Software programmable expansion
multiplexer/amplifier system

UTB \$85

Termination board

UTB-K \$135

Termination panel/metal enclosure

STB37 \$35

37-pin header to convert D-submini
connectors to field wiring

C1800 \$25

18-inch (457mm) cable, female to female

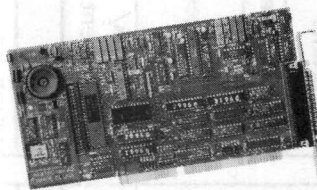
TKAD \$2

Din rail mounting clips for SNAPTRAK (2 required)

2TK2D-6 \$3

6-inch section of SNAPTRAK (for mounting 2M
series termination boards)

16 Channel, 12-Bit MF A/D



Datasheet #1378



ADIO1600

- 16 single-ended & 8 differential Analog inputs
- 12-bit resolution
- 100K samples per second
- Two independent, 12-bit D/A converters
- 32 Digital I/O lines, 4 in, 4 out & 24 I/O

The Model ADIO1600 is a three-quarter length, multifunction high-speed Analog/Digital I/O card. All connections are made through a standard 37-pin D type connector. The 24 Digital I/O lines are accessible through an auxiliary cable to a second slot bracket.

Specifications

Bus ISA	Power Requirements +5VDC @ 800mA
Channels 16SE / 8DF; switch selectable	Operating Temperature 0 ° to 50 °C
Resolution 12-bits	Storage Temperature -20 ° to 70 °C
Input Voltage Ranges 0-10V ± 5 V, 0-1V ± 0.5 V, 0-0.1V ± 0.05 V, 0-0.01V ± 0.005 V	Humidity 0 to 90% non-condensing
Gain 1, 10, 100, 1000; software selectable	MTBF 28.53-years
Throughput 100,000 conversions per second max.	Connector DB37P
	OS Support Dos, Windows 3.1/95/ 98/NT/2000

Ordering Guide

ADIO1600 \$409

Card, manual, software, cable/bracket

Accessories

UTB-K \$135

Termination panel/metal enclosure

C1800 \$25

18-inch (457mm) cable

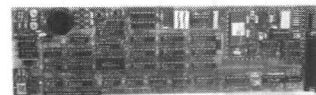
STB37 \$35

37-pin header to convert D-submini
connectors to field wiring

CA37-1 \$35

Cable adapter for use with first eight
AT16-P's

Multi-Function Analog & Digital I/O Card



Datasheet #1340



AI016-P

- 50,000 and 100,000 samples/sec.
- DMA data transfer mode
- 16 single-ended Analog inputs or 8 differential Analog inputs
- 12-bit resolution
- 2 Analog outputs
- 4 Digital inputs (TTL), and 4 Digital outputs (TTL)
- 3 channel counter/timer
- Triggerable scanning



The Models AI016-P and AI016F-P are multifunction high-speed Analog/Digital I/O cards. They are full length cards that can be installed in PC/XT/AT compatible computers. With this card installed, the computer can be used as a precision data acquisition and control system or as a signal analysis instrument.

Specifications

Bus ISA	Power Requirements +5VDC @ 900mA (typical) +12VDC @
Channels 16 SE/8 DF (selectable)	Operating Temperature 0 ° to 50 °C
Resolution 12-bits	Storage Temperature -20 ° to 70 °C
Input Ranges Bipolar: ± 10 , ± 5 , ± 2.5 , ± 1 , ± 0.5 Unipolar: 0-10, 0-5, 0-2, 0-1 User programmable gain resistor	Humidity 0 to 90% RHNC
Gain Settings 0.5, 1, 2, 5, 10	MTBF 28.53-years (calculated)
Throughput 50,000 to 100,000 conversions per/ sec max.	Connector DB37P
	OS Support Dos, Windows 3.1/95/ 98/NT/2000

Ordering Guide

AI016-P \$509

Board, software & manual

AI016F-P \$539

Board, software & manual

Accessories

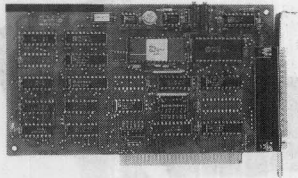
UTB-K \$135

Termination card/metal enclosure

C1800 \$25

18-inch (457mm) cable

8 Channel, 12-Bit MF A/D, Programmable Range



Datasheet #1588 & #1589



AI08-P

- 7-bits Digital I/O
- Up to 20,000 samples/sec
- Triggered scanning
- Supported by most major application software packages
- 9 software programmable ranges
- 8 differential inputs

IFETIME
GUARANTEE

AI08-P

The AI08-P is the foundation design of the AI08G-P. The AI08-P is a simpler card offering a fixed range of -5 to +5VDC input on 8 single ended input channels. It is supported by the same software packages as the AI08GP. The AI08-P has a 25 μ s A/D conversion period offering up to 4000 samples/second (single channel) with the supplied software drivers. The hardware is capable of up to 20,000 readings/second with user-written Assembly code.

AI08G-P

The AI08G-P offers easily interfaced Analog to Digital conversion capability to the PC environment. Based on the simpler AI08-P, the AI08G-P adds software programmability to the scan rate selection and input range selection. The 8 channels can be set up as differential or single ended inputs.

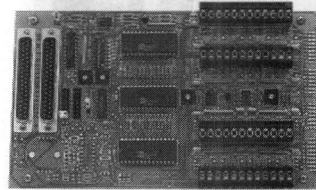
Specifications

Bus ISA	Throughput 20,000 conversions per second
Channels 8 single-ended	Power Requirements +5VDC @ 500mA max. +12VDC @ 10mA max. -12VDC @ 18mA max.
Resolution 12-bit binary; coding is offset binary	Operating Temperature 0 ° to 60 °C
Input Range AI08-P: 0 to 0.8V AI08G-P: Unipolar; 0-10VDC 0-1VDC, 0-0.01VDC, 0-0.02VDC Bipolar; \pm 10VDC, \pm 5VDC, \pm 0.5VDC, \pm 0.5VDC, \pm 0.01VDC	Storage Temperature -20 ° to 70 °C
Gains AI08G-P: programmable	Humidity 0 to 90% RHNC
	MTBF 33.10-years (calculated)
	Connector 37-pin D-Shell, male
	OS Support Dos, Windows 95/98/NT

Ordering Guide

AI08G-P	\$329
Card, drivers & manual	
AI08-P	\$199
Single ended, non-programmable card, driver & manual	

Programmable Analog Multiplexer, 16 DF Channels



Datasheet #1518

AT16-P

- 16 differential inputs
- Instrumentation amplifier
- Software programmable gains
- Thermocouple and RTD inputs
- Quick disconnect termination blocks
- Three-wire RTD excitation provided

IFETIME
GUARANTEE

The AT16-P is an expansion multiplexer/amplifier system that can be used with any data acquisition system. The AT16-P is optimized for use with the AD12-8 Analog I/O board.

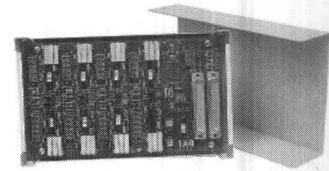
Specifications

Bus None: External board	Power Requirements +5VDC @ 20mA +12VDC @ 10mA -12VDC @ 10mA
Channels 128 channel capacity 8 AT16-P's	Operating Temperature 0 ° to 65 °C
Resolution Connects to 12-bit boards	Storage Temperature -40 ° to 100 °C
Input Ranges All standard ranges per channel Mixed range inputs possible.	Humidity 0 to 90% RHNC
Gains Programmable 1, 2, 10, 50, 100, 200, 400, 1000	MTBF 14.15-years (calculated)
Analog Output Voltage \pm 5VDC	Connector Two DB37P: Digital inputs, Analog output Screw terminals: LVDT inputs

Ordering Guide

AT16-P	\$375
AT16DC-P	\$409
(Required for AI016(F)-P use or for multiple AT16-P applications) includes DC/DC converter, on board, external +5VDC supply required.	
Accessories	
UTB-B	\$50
Metal enclosure	
C1800Y	\$45
18-inch (457mm) Y cable for multiple AT16's	
C1800	\$25
18-inch (457mm) cable	

LVDT Multiplexer, 8 Channels



Datasheet #1278

LVDT8-P

- Interfaces up to 8 LVDT's
- Up to 64 LVDT's per system
- Provides excitation to sensor
- Demodulates and provides \pm 5VDC signal
- Individual gains/offsets

IFETIME
GUARANTEE

The LVDT8-P is an externally mounted accessory that permits the user to interface popular models of LVDTs to any computer system via a standard DC A/D board, e.g., model AD12-8.

Specifications

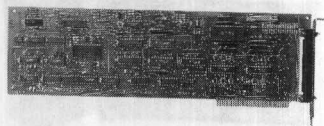
Bus None: External board	Power Requirements 230mA @ +12VDC 230mA @ -12VDC
Channels 8 Channels Daisy chain to 64 channels	Operating Temperature 0 ° to 65 °C
Resolution Connects to 12-bit boards	Storage Temperature -40 ° to 100 °C
Transducers Served LVDT, RVDT, LVRT	Humidity 0 to 90% RH, non-condensing
Gains Individual 1-8	MTBF 85,000 hours (calculated)
Analog Output Voltage \pm 5VDC	Connectors Two DB37P: Digital inputs, Analog output Screw terminals: LVDT inputs

Ordering Guide

LVDT8-P	\$519
Multiplexer, metal enclosure, software	
Accessories	
C1800	\$25
18-inch (457mm) cable	
C1800Y	\$45
Y cable for interfaces to additional LVDT8-P's or AT16-P's	

Analog Input Boards

Low Cost 8-bit, 16 Channel MF A/D



Datasheet #1741



ML16-P

- 16 single-ended or 8 differential A/D
- 2 Analog outputs
- 8 Digital inputs
- 8 Digital outputs
- 3 programmable Counter/Timers
- 8-bit A/D & D/A resolution
- LABLOG included

**LIFETIME
GUARANTEE**

The Model ML16-P is an economical multiplexed, eight-bit Analog-to-Digital converter (A/D) and Counter/Timer card for PC/XT/AT compatible computers. It accepts up to eight differential or 16 single-ended Analog inputs (jumper configured). The ML16-P requires a full-size expansion slot. All output connections are made through a standard 50-pin connector.

Specifications

Bus ISA	Power Requirements +5VDC @ 500mA +12VDC @ 20mA -12VDC @ -20mA
Channels 16 SE or 8 DF	
Resolution 8 binary bits	Operating Temperature 0 ° to 60 °C
Input Range 0 - 256mV 0 - 10VDC ± 128mV ± 5VDC	Storage Temperature -40 ° to 100 °C
Gains Software selectable	Humidity 5 to 90% RHNC
Throughput 16,600 conversions/second max	MTBF 32.24-years (calculated)
	Connectors 50-pin ribbon header
	OS Support Dos, Windows 95/98/NT

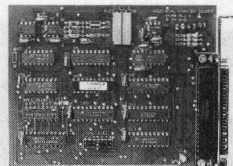
Ordering Guide

ML16-P \$229
Card, Lablog software & manual

Accessories

ML-16TK \$125
Termination panel & cable
UTB-B \$50
Metal enclosure for ML-16K

Low Cost 8-bit, 8 Channel A/D



Datasheet #1154



ML8-P

- 8 A/D channels with 8-bit resolution
- Low cost
- 7 Digital I/O bits (4 output, 3 input)
- ±5 Volt inputs (for 39mV resolution)
- Interrupt handling capability
- Now Windows 95/NT compatible

**LIFETIME
GUARANTEE**

The ML8-P is an 8-Ch multiplexed, 8-bit successive approximation A/D converter with sample and hold. The maximum voltage of each channel is ±5 volts with a resolution of 0.039 volts (39mV). Inputs are single ended with a common ground and can withstand a continuous overload of ±30 volts and very brief transients. All inputs are fail safe, that is, open circuit when the computer power is off. A/D conversion time is 30 microseconds minimum and depends on the speed of the software.

Specifications

Bus ISA	Power Requirements +5V @ 175mA max. +12V @ 30mA max. -12V @ 20mA max.
Channels 8, single ended	
Resolution 8-bits (39mV)	Operating Temperature 0 ° to 50 °C
Input Range ±5V	Storage Temperature -20 ° to 70 °C
Gain Drift 50 ppm/°C Max	Humidity 0 to 90% non-condensing
Throughput 16,600 conversions per sec max	MTBF 34.24-years (calculated)
	Connectors 37-pin D-shell male
	OS Support Dos, Windows 95/98/NT

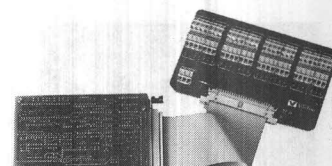
Ordering Guide

ML8-P \$179
Card, manual, software

Accessories

UTB-K \$135
Termination board/metal enclosure
C1800 \$25
18-inch (457mm) cable to UTB-K

16 Channel, 14-Bit Multisensor A/D



Datasheet #1743

MSI601-U

- Direct sensor input to PC
- Accepts ANY COMBINATION of: Thermocouples, Thermistors, Strain Gauges, LVDTs, RTDS, Resistances, Variable Reluctance, Differential or Single-Ended DC Volts
- 14-bit A/D On 11 gain ranges
- 5000-Ch per second conversion
- Frequency inputs
- Onboard data co-processing

The Model MSI608 will accept up to 16 Analog sensor inputs directly; NO EXTERNAL SIGNAL CONDITIONING IS REQUIRED. Thermocouples, RTDS, potentiometers, resistances, strain gages, LVDTs and variable-reluctance pressure transducers, as well as low-level DC voltages may be wired directly to the MSI IN ANY COMBINATION. All required excitation and linearization are provided by the MSI. 14-bit A/D resolution and 11 stages of programmable gain amplification allow accurate measurements from the sensor signal sources. The Analog conversion rate is 5000 to 20,000 channels per second.

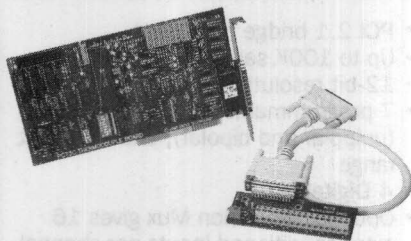
Specification

Bus ISA	Power Requirements +5VDC @ 1.2A +12VDC @ 0.45A
Channels 16 simple ended 8 differential 20,000 Ch/sec	Operating Temperature 0 ° to 70 °C
Resolution 14 bits (+13 bits + sign)	Humidity 95% RHNC
Input Range +10mV to +10.24V full scale, single ended or differential input in 11	Connectors 50-pin, IDC type, male, rear
Gain Variable 11 gain ranges	Software Support DOS-EASY SENSE Excell™ interface software Lento # VI File Lab® View for Windows, Lab Tech Notebook Snap Maseter Windows NT support
Throughput 5,000 ch/sec conv	

Ordering Guide

MSI601-U \$1699
Half card, Analog terminal block, PC Software & 5-foot (1.5 m.) cable

8-Channel Precision Thermocouple Input Card



Datasheet #1408

- 8 differential T/C input channels
- Use with J, K, E, T, B, R, S & N thermocouples
- Cold junction compensation and screw terminals on auxiliary board
- 30Hz data acquisition
- Selectable gain control
- 8 Digital inputs & outputs
- Parallel multiple boards
- Temperature software included
- DOS, Windows 3.1/95/NT support

PC-73

The PC-73 is a low cost thermocouple measurement board. It gives very stable and accurate measurements and are ideal for precision laboratory and industrial applications. The board includes 8 Digital inputs and 8 Digital outputs for control applications.

You can connect a mixture of thermocouple types on the PC-73. Temperatures can be measured either via Normal Mode (polled I/O) or Background Mode (via Interrupts). Exceedingly low noise levels of 1 count (or 0.5C or less for J type thermocouples without averaging) have been achieved and performance standards are in excess of even stand alone amplifiers.

The hardware consists of PC plug-in board and an Auxiliary board which contains most of the circuitry. Wait State generation has been incorporated on the PC-73 in order to allow operation in very fast computers including Pentiums PCs.

Digital Inputs and Outputs

The Digital I/O lines are an added feature on the PC-73 board and are connected to the PC Backplane via an auxiliary DB25 male connector. The Digital inputs can be used as trigger lines to sample data or determine the states of switches, etc. The Digital outputs have a 24mA driving

capability and can hence be used to switch on a buzzer or alarm. For example, if the temperature has exceeded a threshold value then the Digital I/O can be used to enable an LED, etc.

Typical Applications

Industrial control and temperature measurement. Process control and Laboratory Automation. Energy Management and product testing.

Auxiliary Terminal Board

A 25-pin male D-connector mounted on the board provides an interface between the PC 73C and the auxiliary Screw Terminal Board. This board provides the Cold Junction Compensation circuitry as well the interface for the thermocouples.

Driver Software

The driver software allows programmers to control the PC-73 via high level function calls, enabling users to write custom software without needing to understand the low level operation of the card. Advanced multisegmented polynomial linearization for J, K, E, T, B, R, S and N type thermocouples is provided. The complete source code, in C and BASIC, is also included for the entire driver package, allowing users to modify existing code, rather than starting from scratch.

Specifications

Bus

ISA (8-bit)

Channels

8 thermocouple inputs, ungrounded
1 CJC input from terminal board

Resolution

12-bit + sign, 1 in 8192

Input Range

-4.095 to +4.095V,
-40.95 to +40.95mV,
-20.475 to +20.475mV,
-8.190 to +8.19mV, Jumper Selectable

Gains

Selectable from: 1, 10, 100, 200, 300,
500, 600, 700, 800.

Throughput

30Hz max.

Power Requirements

+5V@500mA (typical)
-5V@30mA (typical)
±12V@100 mA (typical)

Operating Temperature

0 ° to 50 °C

Humidity

0 to 90% RHNC

Connectors

2 x 25 way male D-type
(one for A/D, one for Digital I/O)

OS Support

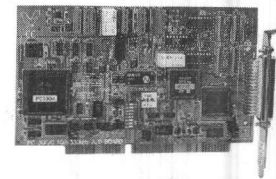
Dos, Windows 3.1/95/NT

Ordering Guide

PC-73 \$759

Precision thermocouple system: PC plug-in board, auxiliary screw-terminal board, connecting cable and software, manual included

High Performance Multi-Function Data Acquisition Cards



Datasheet #1499



PC-30F(G) Series

- 12-bit A/D with 16SE or 8DF input channels
- 330kHz (PC-30F) or 100kHz (PC-30G) sample rates
- FPGA design reduces component count, increases reliability
- Dual gap-free DMA & block-mode DMA data transfers
- 4 Analog output models (now all 12-bit)
- Simultaneous sample & hold model
- Dos, Windows 3.1/95/NT support

Specifications

Bus

ISA

Base Address

000h to 1FE0h

Interrupts

IRQ 2 to 15

Input Ranges

Bipolar: ±5V, ±10V
Unipolar: 0 to +10V
(G series only)

Power Requirements

+5VDC @500mA (typical)
±12 for user application only

Operating Temperature

0 ° to 70 °C

Humidity

0 to 90% RHNC

Connector

50-pin

Ordering Guide

PC-30G \$479

100kHz Analog input card

PC-30FA \$850

330kHz Analog input card, 4 Analog out channels

PC-30FS16 \$995

330kHz Analog input card, 16-Ch SSH

PC-30GA \$689

100kHz Analog input card, 4 Analog out channels

PC-30GAS16 \$1,195

100kHz Analog input card, 4 Analog out channels, 16-Ch SSH

PC-30GS4 \$689

100kHz Analog input card, 4-Ch SSH

Accessories

CAB50A-6 \$39

50-pin header both ends 6-foot ribbon cable (attaches to UTB-K screw termination metal enclosure or to 2M50FC)

2M50FC \$89

Screw terminal board for field wiring.

UTB \$85

Termination board

UTB-K \$135

Universal termination board kit with UTB & UTB-B

TKAD \$2

Din rail mounting clips for SNAPTRAK (2 required)

2TK2D-6 \$3

6-inch section of SNAPTRAK (for mounting 2M series termination boards)

Analog Input Boards

PCMCIA 8 Channel Analog Input, 12-Bit Card



Datasheet #1884

PAD128

- 12-bit resolution D/A
- 8 independent channels
- Different ranges single ended or differential (four max)
- 140K samples/sec max
- 16-bits of Digital I/O
- Windows 95/98/NT/2000 support

The model PAD128 is an A/D type II PCMCIA card (PC card). It performs data acquisition on up to eight Analog inputs and provides parallel Digital input/output capability for up to 16-bits. A 24-inch long cable that comes with the PAD128 has PCMCIA interface on one end and standard DB37 male on the other end which can plug into any of our standard 37-pin screw termination boards. The Analog input configuration is software controlled on a channel-by-channel basis and you can have any combination of single-ended and differential inputs that adds up to eight pins. A/D converter has self-calibration capability and a 32 sample FIFO buffer. Settle time for the input multiplexer, sample and hold amplifier is also programmable. Conversions can be initiated either by an external "sync" input to the card or by programmable on-card pacer clock to achieve overall maximum throughput rate of 140,000 samples/sec.

Specifications

Bus	PCMCIA Type II	Humidity	5 to 95% non-condensing
Channels	8	Connectors	DB37, male
Resolution	12-bits	OS Support	Windows 95/98/NT/2000

Input Ranges

2-Ch each
± 10VDC, ± 5V, 0.5V, 0-100mV

Throughput

Up to 140K samples per second

Power Requirements

5VDC 47mA (typical)

Operating Temperature

0 ° to 60 °C

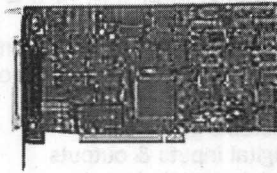
Storage Temperature

-50 ° to 120 °C

Ordering Guide

PAD128	\$289
PCMCIA 8-Ch A/D card, cable, manual, software	

PCI 16 Channel, 12-Bit MF A/D



Datasheet #1742

PCI-AI/1216

The model PCI-AI/1216 is a multifunction, high speed, Analog-to-Digital converter card for use in PCI slots. It accepts up to 16 single ended inputs or 8 differential inputs. With the use of AT16-P or AT16DC-P, the PCI-AI/1216 can receive direct sensor inputs such as Thermocouples and expand up to 256-Ch. Four high current digital outputs are provided for Mux channel control and three additional digital outputs are provided for Mux gain control. Three 16-Bit programmable down counters are used as on-board pacer clock and two counter timers.

Conversions can be initiated in any one of three ways: (1) by software command, (2) by external start commands, or (3) on a timed basis using on-board programmable counters. Converted data may be transferred to the computer by one or two

- PCI 2.1 bridge compliant
- Up to 100K samples/sec.
- 12-bit resolution
- 7 programmable voltage ranges (unipolar and bipolar), and a current range
- 4 Digital I/O
- Optional expansion Mux gives 16 extra conditioned inputs per channel
- 7 Digital Outputs for Mux channel and gain control
- Three 16-Bit counters
- Dos, Windows 95/98/NT/2000 support

software selected methods: (1) by polling for the end-of-conversion signal, or (2) by generating an interrupt when the end-of-conversion signal occurs.

The Model PCI-AI/1216M has all of the foregoing features plus includes a 2k sample FIFO data buffer and a 2k word Point List FIFO buffer. The addition of these FIFOs permits background-task-based data acquisition. The Point List FIFO contains channel, sub-MUX channel, and voltage range for each Analog input channel (point). The data buffer contains A/D conversion results. When the data buffer becomes half full, an interrupt can be generated to cause the data to be read into the computer.

Specifications

Bus

PCI

Channels

16 single-ended & 8 differential inputs

Resolution

12-bits (binary)

Input Ranges

Logic high
2.0 to 5.0VDC @ 20uA maximum at 2.7V
Logic low
-0.5 to +0.8VDC @ -0.4mA maximum

Gains

±45 ppm/°C maximum.

Throughput

Up to 100k samples per second

Power Requirements

+5VDC: 600mA (typical)
+12VDC: 650mA (typical)
-12VDC: 650mA (typical)

Operating Temperature

0 ° to 50 °C

Storage Temperature

-20 ° to 70 °C

Humidity

0 to 90% RHNC

MTBF

22.83-years

Connectors

DB37S, male

OS Support

Visual Basic, Windows 3.1/95/98/NT/2000

Ordering Guide

PCI-AI/1216 \$319

12-bit PCI A/D with 16 single-ended inputs

PCI-AI/1216M \$399

Same as PCI-AI/1216 with 2K Fifo Buffers

Accessories

AT16DC-P \$409

(For multiple AT16-P applications) includes DC/DC converter, on board, external +5VDC supply required

AT16-P \$375

Software programmable expansion multiplexer/amplifier system

UTB-K \$135

Universal Termination Board Kit with UTB & UTB-B

UTB-B \$50

Optional metal enclosure for AT16

TKAD \$2

Din rail mounting clips for SNAPTRAK (2 required)

C1800Y \$45

18-inch Y cable DB37 female to two DB37 females

C1800 \$25

18-inch (457mm) cable, female to female

ADAP37 \$49

DB37 Rear Mount Termination Board

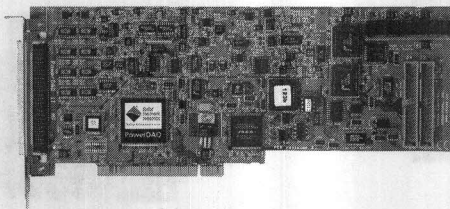
2TK2D-6 \$3

6-inch Section of SNAPTRAK (for mounting 2M Series Termination Boards)

STB37 \$35

37-pin header to convert D-submini connectors to field wiring

PCI High Performance Multifunction Analog/Digital Boards



Datasheet #1802

PD2/16-64 Series

- DSP processor board
- Simultaneous A/D, D/A, DIO & CTR operation
- Bus mastering DMA
- No jumpers or switches
- No "monitoring" ISA or PCI circuitry
- Auto calibration
- Known start-up states for all subsystems
- Free LabView, Windows 2000 & Linux drivers

The PowerDAQ software and firmware have been designed from the ground up to be fully compatible with the 32-bit operating systems, Windows® 95/98 and Windows NT. They use no legacy code so you're guaranteed the latest software driver development techniques.

The PowerDAQ data acquisition boards are designed around a processor based 24-bit 66MHz Motorola 56301 PCI DSP interface. This design allows the user to off load the host CPU data acquisition functions to the onboard DSP thus giving the user two CPUs in one PC.

Each PowerDAQ multifunction board is comprised of four subsystems, Analog input, Analog output, Digital I/O, and counter/timers. PowerDAQ technology allows all the subsystems to run simultaneously and/or independently with one or multiple boards in the same PC.

Bundled Software PowerDAQ SDK for Windows 95/98/NT/2000 supports application development in Visual C++ Builder. The 32-bit library was written from scratch without any legacy code from 16-bit or DOS versions. Also included at no cost are drivers for these applications:

- LabVIEW for Windows
- HP VEE for Windows
- LabWindows/CVI
- TestPoint
- DASyLab
- DiaDem
- LINUX

Specifications

Bus

PCI

Channels

16 or 64 single-ended
8 or 32 differential

Resolution

12, 14 & 16 bits

Input Ranges

Bipolar $\pm 0.005V$ to $\pm 10V$ (software selectable)
or Unipolar

Gain

(Software Selectable)
L Versions: 1, 10, 100, 1000
H Versions: 1, 2, 4, 8

Throughput

333KHz or 500KHz @ 16-bit
2.2 Mhz or 400KHz @ G 14-bit
1.25MHz @ 12-bit

Power Requirements

+5VDC @ 1A
 $\pm 12VDC$ @ 50mA each

Operating Temperature

0 ° to 70 °C

Storage Temperature

-25 ° to 85 °C

Humidity

95% noncondensing

MTBF

200,000hrs POH (calculated)

Connectors

J1

96-pin high-density Fujitsu male connector
(Fujitsu # FCN-245P096-G/U)

J2 & J4

36-pin header, male (Thomas and Betts
PN#6093627)

J6

8-pin male connector (Adam-Tech PN#PM2-SMT-
8-SGA) (Fujitsu # FCN-245P096-G/U)

OS Support

Windows 95/98/NT/2000, LINUX, (QNX optional)

Ordering Guide

PD2/16-1M/12H	\$1695
16-Ch, 12-bit, 1MHz card, manual, software	
PD2/16-1M/12L	\$1695
16-Ch, 12-bit, 1MHz card, manual, software	
PD2/16-2M/14H	\$2795
16-Ch, 14-bit 2.2Mhz card, manual, software	
PD2/16-333/16H	\$1650
16-Ch, 16-bit, 333kHz card, manual, software	
PD2/16-333/16L	\$1650
16-Ch, 16-bit, 333kHz card, manual, software	
PD2/16-400/14H	\$895
16-Ch, 14-bit, 400kHz card, manual, software	
PD2/16-400/14L	\$895
16-Ch, 14-bit, 400kHz card, manual, software	
PD2/16-50/16H	\$795
16-Ch, 16-bit, 50kHz card, manual, software	
PD2/16-50/16L	\$795
16-Ch, 16-bit, 50kHz card, manual, software	
PD2/64-1M/12H	\$2495
64-Ch, 12-bit, 1MHz, card, manual, software	
PD2/64-1M/12L	\$2495
64-Ch, 12-bit, 1MHz card, manual, software	
PD2/64-2M/14H	\$3495
64-Ch, 14-bit, 2.2Mhz card, manual, software	

PD2/64-333/16H	\$2395
64-Ch, 16-bit, 333kHz card, manual, software	
PD2/64-333/16L	\$2395
64-Ch, 16-bit, 333kHz card, manual, software	
PD2/64-400/14H	\$1395
64-Ch, 14-bit, 400kHz card, manual, software	
PD2/64-400/14L	\$1395
64-Ch, 14-bit, 400kHz card, manual, software	

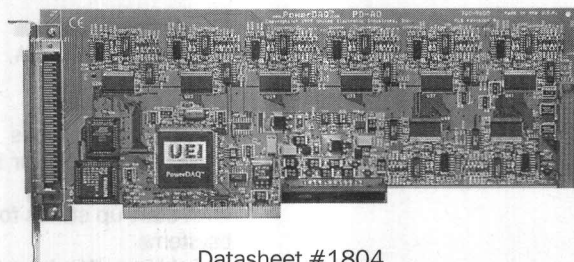
Accessories

PD19RACK	\$55
2-U rack adapter for screw termination panels	
PDSTP9616-KIT	\$275
Includes panel (PDSTP9616) and cables (PDCBL-96&PDCBL-37) for 16-Ch boards	
PDSTP9616	\$155
Panel with 96-pin & 37-pin connector for 16-Ch boards	
PDSTP96	\$245
Panel with 96-pin & 37-pin connector for 64-Ch	
PDCBL-96	\$107
96-way	
PDCBL-37TP	\$85
Same as PDCBL-37 with twisted pair cabling	

PDCBL-37	\$55
DIO cable set: 37-way D-sub cable, internal cable w/ mounting bracket, 1 meter	
PDCBL-9637	\$69
96-pin to DB37 female shielded cable, connects 16-Ch cards to low cost STB37 termination BD	
STB37	\$35
37-pin screw termination board	
PD-CONN	\$49
96-way high density connector	
PD100HDR	\$95
96-pin to 250-pin header boeakout interface board	
DoctorDAQ	\$195
Microsoft Excel interface software	

Analog Output Boards

PCI High Performance 16-Bit 8-32 Channel D/A



Datasheet #1804

PD2-AO

- Analog outputs (choice of 8, 16 or 32 16-bit channels)
- Digital inputs (8 lines)
- Digital outputs (8 lines)
- Three 24-bit counters/timers
- Three clock/interrupt lines
- Channel list
- User defined power-on state
- Simultaneous channels update
- Onboard buffer size: 2k samples

Bundled software

PowerDAQ SDK for Windows® 95/98/NT that supports application development in Visual C++, Visual Basic, Delphi and C++ Builder. The 32-bit library was written from scratch without any legacy code from 16-bit or DOS versions.

Also included at no cost are drivers for these applications:

- LabVIEW for Windows
- HP VEE for Windows
- LabWindows/CVI
- TestPoint
- DASyLab
- DiaDem
- Linux

Offering as many as 32 Analog outputs with 16-bit resolution, PD2-AO PCI-bus boards expand on the dual 12-bit calibration DAC-based supplied on PD2-MF multifunction boards. Here you not only significantly increase the number of Analog outputs, you also keep 16 Digital I/O lines and three counter/timers. With these functions, the PD2-AO is well suited to implement complex closed-loop systems as well as handle motor control and many other industrial-automation tasks.

The card calibrates each Analog output individually without using trimpots and instead relies on a special D/A-based scheme that stores calibration coefficients in EEPROM and loads them automatically upon power up. This method also keeps board outputs in a predefined user-programmable state upon system start-up.

Specifications

Bus

PCI

Channels

8, 16 or 32

Resolution

16-bits

Output Range

±10V Fixed

Operating Temperature

0 ° to 70 °C

Storage Temperature

-25 ° to 85 °C

Power Requirements

5 VDC

2.4 Amp

+ 15 VDC generated on board DC-DC Converter

Humidity

0 to 95% noncondensing

MTBF

200,000hrs (calculated)

Connector

J1 connector, 96-pin high density, Fujitsu mode

OS Support

Windows 95/98/NT/2000, LINUX (QNX optional)

Ordering Guide

PD2-AO-8/16 \$895
8-Ch Analog output, 16-bits, 100 kS/s per channel, two 24-bit counter timers, two ESSi ports

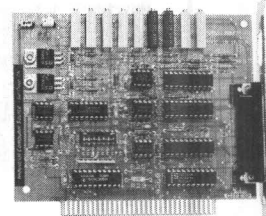
PD2-AO-16/16 \$1295
16-Ch Analog output, 16-bits, 100kS/s per channel, two 24-bit counter timers, two ESSi ports

PD2-AO-32/16 \$1995
32-Ch Analog output, 16-bits, 100 kS/s per channel, two 24-bit counter items, two ESSi ports

PD2-AO-STP-16 \$299
16-Ch screw-terminal panel for PD2-AO includes 96-way; 1m cable

PD2-AO-STP-32 \$399
32-Ch screw terminal panel for PD2-AO includes 96-way; 1m cable

2-Port Analog Output Card, 12-Bit



Datasheet #1155



AOB2-P

- 2 Analog output channels
- 12-bit resolution
- Now Windows 95/NT compatible

**LIFETIME
GUARANTEE**

The Model AOB2-P is a half-size card that can be installed in short I/O slots of PC/XT/AT class computers. The card contains two Digital-to-Analog converters (DACs) and provides two independent Analog output channels of 12-bit resolution. Each Analog output channel can be configured for one of the following ranges: 0V to +5V, 0V to +10V, -5V to +5V, -10V to +10V, or 4mA to 20mA

Specifications

Bus

ISA

Channels

2

Resolution

12-bit (1/4096)

Output Range

0V to +5V (5mA max)

0V to +10V

-5V to +5V

-10V to +10V

4mA to 20mA

External loop supply, 8 to 36VDC required

Power Requirements

+5V @ <100mA

+12V @ <25mA

-12V @ <35mA

Operating Temperature

0 ° to 70 °C

Storage Temperature

-55 ° to 125 °C

Humidity

5% to 95% non-condensing

MTBF

>100,000hrs (calculated)

Connectors

25-pin, D-shell, female

OS Support

Dos, Windows 95/98/NT

Ordering Guide

AOB2-P \$289

2-port Analog output card

Accessories

UTB \$85

Termination card

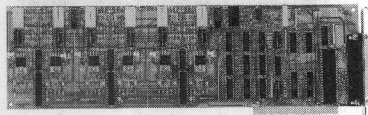
UTB-K \$135

Universal termination board kit with UTB & UTB-B

K1800A \$29

18-inch (457mm) cable

6-Port Analog Output Card with 4-20mA Out Capability



Datasheet #1642



AOB6-P

- 6 Analog outputs
- Calibration software included
- 12-bit resolution
- Current loop capability
- 24 Digital I/O
- Individual range selection per channel



The Model AOB6-P can be installed in PC/XT/AT compatible computers. It economically provides six independent 12-bit Digital-to-Analog Converters (DAC) and 24 bits of Digital I/O. Each DAC has double buffered input for single step update and occupies a unique address location. Analog output update mode is selected by a selector switch on this card. Three update modes are available:

1. Individual update of each channel
2. Simultaneous update of all selected channels
3. Simultaneous update of all selected channels upon receipt of an external signal (Note: This mode requires use of six Digital I/O lines on Port C.)

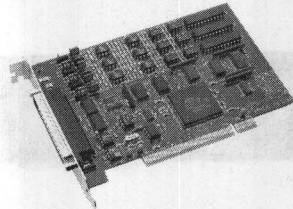
Specifications

Bus	Power Requirements
ISA	+5V @ 500mA
Channels	+12V @ 70mA
6	-12V @ 60mA
Resolution	Operating Temperature
12-bit (1/4096)	0 ° to 60 °C
Output Range	Storage Temperature
0 to +5	-20 ° to 85 °C
0 to +10	Humidity
-2.5 to +2.5	5 to 95% RHNC
-5 to +5	MTBF
-10 to +10VDC	>97,000hrs (calculated)
4mA-20mA DC	Connectors
(with external loop supply of 8 to 36VDC)	37-pin, D-shell, male
	OS Support
	Windows 95/98/NT

Ordering Guide

AOB6-P	\$459
Card, manual, software	
Accessories	
UTB	\$85
Termination card	
UTB-K	\$135
Universal termination board kit with UTB & UTB-B	
C1800	\$25
18-inch (457mm) cable female to female	

PCI 2,4,6 Channel Analog Output, 12-Bit Card



Datasheet #1885



PCI-AOB6

- 12-bit resolution D/A
- 2, 4, 6 independent channel versions
- Channel-by-channel or simultaneous update modes
- 6 output voltage ranges
- Current loop capable (4-20mA)
- Individual range selection per channel
- 16-bits of Digital I/O
- +12VDC & +5VDC (fused) available on connector
- PCI 2.1 compliant (seen past bridge)
- Windows 95/98/NT/2000 support

The PCI-AOB6 family of half sized PCI Analog output boards fill an important gap in the Controls Industry, giving users a small number of Analog output ports for the modern PC with no ISA slots. The DB37 connector was modeled after the AOB6-P, however the third byte of Digital I/O was dropped to provide fused +12VDC and +5VDC plus other reference pins important to Analog output users.

The PCI-AOB2, 4, & 6 has standard Auto Selection of address and single interrupt. Much of the card has software selection and control instead of the numerous jumpers used on the older ISA card. The PCI-AOB2, 4, & 6 allows the user to move easily from the older systems to current modern PCs.

Specifications

Bus	Power Requirements
PCI	+5V @ 250mA
Channels	+12V @ 116mA (6 channels)
2,4,6	-12V @ 56mA
Resolution	Operating Temperature
12-bit	0 ° to 60 °C
Output Range	Storage Temperature
0V to +2.5V	-20 ° to 85 °C
0V to +5V	Humidity
0V to +10V	5 to 95% RHNC
-2.5V to +2.5V	MTBF
-5V to +15V	200,000hrs (calculated)
-10 to +10V	Connector
4mA-20mA	37-pin, D-shell, male
	OS Support
	Windows 95/98/NT/2000

Ordering Guide

PCI-AOB2	\$359
PCI 2-Ch card, manual, software	
PCI-AOB4	\$449
PCI 4-Ch card, manual, software	
PCI-AOB6	\$529
PCI 6-Ch card, manual, software	

Custom Product Design Support

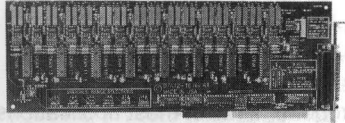
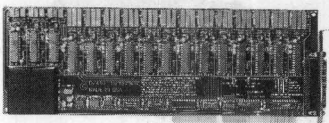
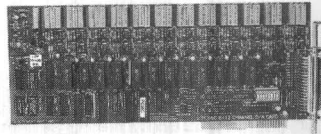
Although ICS Advent's wide array of standard product designs offer alternatives that can span the requirements of most applications' configuration scenarios, we also provide in-depth design support for custom tailoring of products to meet your specific application requirements.

For example, if you require an embedded computing platform with a unique form factor, specialized functionality, nonstandard power requirements, extended storage or I/O capabilities, and/or custom cooling capacity, our highly skilled design staff can make it happen quickly and painlessly. Or if you need to enhance the branding of your computer platforms with your own corporate color schemes or logos, we've got the processes in place to efficiently accommodate your requirements. Similarly, if you've got specialized integration or test requirements such as functional test and buy-off of specific applications software, we can handle the whole process and drop-ship directly to your end customers.

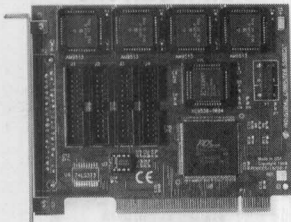
The bottom line is that ICS Advent is dedicated to meeting your specific business objectives through a solid combination of core technologies and flexible partnering relationships. Our strength lies in our ability to provide more than just products, to work closely with you as a key member of your extended corporate team and to help you develop completely integrated solutions designed to meet your unique requirements.



Analog Output Boards

8/16-Ch Analog Output Card, 12-Bit	8/16-Port 16-Bit Analog Output Cards	12-Port Analog Output Card, 12-Bit
		
ISA Datasheet #1280 PCI Datasheet #1782	Datasheet #1122	Datasheet #1517
AOB16/12	AOB16/16	AOB12/C
<ul style="list-style-type: none"> 12-bit resolution D/A converters 8- or 16-Ch versions Channel-by-channel or simultaneous update modes 6 output voltage ranges 	<ul style="list-style-type: none"> 16-bit resolution Digital to Analog converters 8- or 16-Ch versions 4 output voltage ranges Zero volts out on power-up or reset Channel-by-channel or simultaneous update modes 	<ul style="list-style-type: none"> Unipolar & bipolar modes 12 independent 12-bit DACs Bipolar mode supports remote sensing Parallel triggering available on 8-ports Ideal for 3 phase Waveform Generation
<p>The models PCI-AOB8/12, AOB8/12, PCI-AOB16/12 and AOB16/12 are full-size cards that can be installed in any long I/O slot of PC/AT class computers. The AOB8/12 and PCI AOB12 contains 8 double-buffered, 12-bit Digital-to-Analog converters, while the PCI AOB16/12 and AOB16/12 contains 16-Ch. Each channel can be configured for unipolar ranges of 0V to 2.5, 5, or 10 volts or bipolar ranges of ± 2.5, 5, or 10 volts.</p>	<p>The Models AOB16/16 and the AOB8/16 contain 16 and 8 double-buffered Analog output channels respectively. The cards are compatible with any PC/AT compatible computer. The card design has been optimized for minimum output noise. Signals on the card are carefully shielded with Analog ground and have wide signal traces to minimize resistive drop under loads up to 5 mA.</p> <p>These cards include a unique in Software Clear capability. This feature permits resetting the DAC output to zero volts without changing the output mode. However, the preload registers are not cleared and when an appropriate update command occurs, the previous output is restored.</p>	<p>The Model AOB12/C 8 or 12-Ch DAC board is a high accuracy Digital to Analog Board for the PC/XT/AT, 486, Pentium, ISA and EISA Computers. It provides 12-Ch of D/A with remote sensing capability which compensates for voltage drops over long leads. DAC settling times are less than $2\mu s$ for a 10V output swing. Parallel triggering is also another feature of this board which makes it ideal for fast three phase waveform generation. Eight DACs can be preloaded with new output values and then updated in parallel by an eight bit control word. The other 4 DACs can also be updated in the same way by a 4 bit control word.</p> <p>The Model AOB12/C fits into one of the 8-bit expansion slots in any PC compatible computer. It uses 25 I/O addresses, while its base address may be set using switches anywhere in the range of 0h to 1FE0h. The external signals connect to the AOB12 via a female 37-pin D-type connector.</p>
Specifications Bus PCI-AOB16/12 PCI-AOB8/12 PCI 24-bit AOB16/12 AOB8/12 ISA Channels 8 or 16 Resolution 12-bit Ranges 0 to 2.5, 5, 10VDC ± 2.5 , 5, 10VDC Power +5VDC @ 250mA +12VDC @ 310mA max (16-Ch) -12VDC @ 150mA Operating Temperature 0 ° to 60 °C Storage Temperature -20 ° to 85 °C Humidity 5 to 95% RHNC MTBF 100,000 hours (calculated) 180,000 hours (calculated) (PCI-AOB8/12) Connector DB37 Male OS Support Dos, Windows 95/98/NT/2000	Specifications Bus ISA Channels 8 or 16 Resolution 16-bit Output Range -5 to +5V -10 to +10V 0 to +5V 0 to +10V Power +5V @ 2.5A (typical) (16-Ch card) Operating Temperature 0 ° to 60 °C Storage Temperature -20 ° to 85 °C Humidity 5 to 95% non-condensing MTBF 176,000 hours (calculated) AOB8/16 96,000 hours (calculated) AOB16/16 Connectors DB-37 Male OS Support Dos, Windows 95/98/NT/2000	Specifications Channels 12 bipolar, 8 unipolar Resolution 12 bits, 1/4096 Ranges -5 to +5, -10 to +10 (12-Ch's) 0 to +5, 0 to +10 (8-Ch's) Power Requirements +5VDC @ 600mA, (typical) +12VDC @ 100mA, (typical) -12VDC @ 100mA, (typical) Operating Temperature 0 ° to 55 °C Storage Temperature -55 ° to 150 °C Humidity 5 to 90% non-condensing Connectors DB37 female connector OS Support Dos, Windows 95/98/NT
Ordering Guide PCI-AOB16/12 \$1199 PCI 16-Ch card, manual, software PCI-AOB8/12 \$649 PCI 8-Ch card, manual, software AOB16/12 \$849 16-Ch card, manual, software AOB8/12 \$479 8-Ch card, manual, software Accessories UTB \$85 Termination board UTB-K \$135 Termination card, metal enclosure C1800 \$25 18-inch (457mm) cable	Ordering Guide AOB16/16 \$1599 16-Ch card, manual, software AOB8/16 \$959 8-Ch card, manual, software Accessories UTB \$85 Termination board UTB-K \$135 Termination card/metal enclosure C1800 \$25 18-inch (457mm) cable	Ordering Guide AOB12/C \$639 Card, manual, software Accessories UTB \$35 Termination card, metal enclosure C1900 \$25 18-inch (457mm) cable

PCI 5, 10, 20 Channel Counter/Timer Card



Datasheet #1738



PCIDCC-P Series

The PCIDCC-P family consists of three models, the PCIDCC5-P, PCIDCC10-P, and the PCIDCC20-P. The PCIDCC20-P contains four AM9513 System Timing Controller LSI circuits. Each AM9513 consists of five independent 16-bit up/down counters. The PCIDCC10-P contains two AM9513 circuits and the PCIDCC5-P contains one. The PCIDCC5-P does however, contain an 8-bit input port and an 8-bit output port in addition to the AM9513. The PCIDCC10-P and PCIDCC20-P are physically the same board except for the difference in the number of counters. On the PCIDCC10-P and PCIDCC20-P, the signals for each counter are available on independent 26-pin headers. On the PCIDCC5-P, the signals are available on a DB37 male connector.

The counters can be programmed to count up or down in either binary or BCD. A selection of various internal and external frequency sources and outputs may be chosen as inputs for

- 5, 10 or 20 independent 16-bit counters
- cascadable counters
- Measures frequency to 7MHz
- Up/down and binary/BCD counting
- Programmed frequency output
- Alarm comparators on two counters
- Supported by major application software packages
- 10 or 20 independent 16-bit counters
- Programmable count source/gate selection
- Programmable input/output polarities
- Interrupt handling
- 1MHz TTL oscillator
- Counters internally cascadable

**LIFETIME
GUARANTEE**

individual counters with software selectable active-high or active-low polarities. Each counter may be gated by either software or hardware.

Each counter has a single dedicated output pin. Considerable versatility for configuring both the input and the gating of individual counters is provided. This not only permits dynamic reassignment of inputs under software control, but also allows multiple counters to use a single input, allows a single gate input to control more than one counter, and allows for cascading.

The PCIDCC-P series of adapters is fully PCI 2.1 compliant and thus "Plug-n-Play". The Interrupt Request (IRQ) and Base Address of the adapter is defined by the PCI BIOS. This scheme typically prevents I/O and IRQ conflicts.

Specifications

Bus

PCI

Counter Type

AM9513

Number of Counters

One offering 5, 10, and 20 independent channels

Counter Clock

1MHz ($\pm 0.01\%$, 0 to 70 °C)

Power Requirements

+5VDC @ 400mA (typical)

Operating Temperature

0 ° to 50 °C

Storage Temperature

-25 ° to 85 °C

Humidity

0 to 90%, RHNC

MTBF

>150,000 hrs

Connector

37-pin D-shell, male (PCIDCC5-P)

26-pin IDC header (PCIDCC10/20-P)

Certification

CE Conformity with:

EU EMC Directive 89/336/EEC

EU Low Voltage Directive 72/23/EEC

Digital I/O (DCC5-P Only)

Number of Lines

8 input and 8 output, latched

Logic

LSTTL

Input Low

-0.5 to 0.8VDC

Input High

2.0 to 5.0VDC

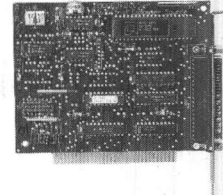
Sink Current

24mA

Source Current

18mA

ISA 5, 10, 20 Channel Counter/Timer Card



Datasheet #1179



DCC5-P, DCC10-P DCC20-P

- 5, 10, 20 independent 16-bit counters
- Cascadeable counters
- Measures frequency to 7MHz
- Up/down and binary/BCD counting
- Programmed frequency output
- Alarm comparators on two counters

**LIFETIME
GUARANTEE**

The DCC-P Family is similar to the PCI DCC-P family with the exception that it is on the ISA Bus.

Specifications

Bus

ISA

Counter Type

One offering 5, 10, and 20 independent channels

Counter Clock

1MHz ($\pm 0.01\%$, 0 ° to 70 °C)

Operating Temperature

0 ° to 50 °C

Storage Temperature

-25 ° to 85 °C

Humidity

0 to 90%, RHNC

MTBF

>150,000hrs

Connector

37-pin D-shell, male

(DCC5-P)

26-pin IDC header

(DCC10/20-P)

Ordering Guide

DCC5-P	\$249
5 Counter/timer board, manual, software	
DCC10-P	\$339
10 Counter/Timer card, manual, software	
DCC20-P	\$429
20 Counter/Timer card, manual, software	
UTB-K	\$135
Termination card/metal enclosure	
C1800	\$25
18-inch (487 mm) cable	
STB37	\$35
DB37 Termination card for Snaptrack	
TKAD	\$2
DIN rail mounting clips for SNAPTRAK (2 required)	
2TK2D-6	\$3
6-inch section of SNAPTRAK	
2M26FC	\$59
Termination card for DCC10-P or DCC20-P, one required for each counter chip (maximum of 4)	
C2600	\$29
36-inch (914mm) cable for interface between DCC10-P or DCC20-P & 2M26FC, one required for each counter chip/termination card (maximum of 4)	

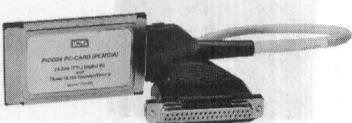
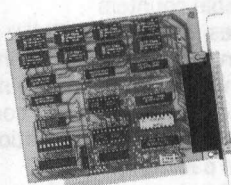
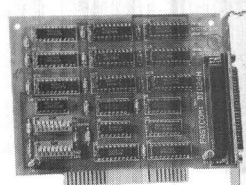
Ordering Guide

PCIDCC5-P	\$199
5 Counter/Timer card, manual, software	
PCIDCC20-P	\$299
20 Counter/Timer card, manual, software	
PCIDCC10-P	\$249
10 Counter/Timer card, manual, software	

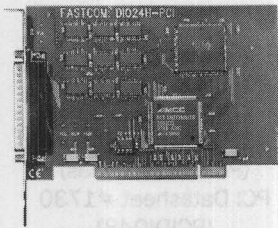
Accessories

UTB	\$85
DB37 Termination board	
UTB-K	\$135
DB37 Termination card/metal enclosure	
TKAD	\$2
Din rail mounting clips for SNAPTRAK (2 required)	
2TK2D-6	\$3
6-inch section of SNAPTRAK	
STB37	\$35
DB37 Screw termination panel	
C1800	\$25
18-inch (487mm) cable	
2M26FC	\$59
Termination card for PCI/DCC10-P or PCI/DCC20-P, one required for each counter chip (maximum of 4)	
C2600	\$29
36-inch (914mm) cable for interface between PCI/DCC10-P or PCI/DCC20-P & 2M26FC, one required for each counter chip/termination card (maximum of 4)	

Counter/Timers & Digital TTL Boards

PCMCIA 24-Bit Digital I/O & Counter/Timer Card	24 I/O, DB37, 8255 Without Buffered Output	24-Port Digital I/O with High Sink Current
		
Datasheet #1649	Datasheet #1144	Datasheet #1356
PIOD24	DIO24-P	DIO24H
<ul style="list-style-type: none"> • 24-bits of Digital I/O • Three 16-bit counters • Plug-n-Play Windows 95 installation • Type II PCMCIA card w/cable 	<ul style="list-style-type: none"> • Unidirectional or bi-directional strobed I/O • Interrupt handling • 24 TTL/DTL Digital I/O lines • Now Windows 95/98/NT compatible 	<ul style="list-style-type: none"> • 24-ports of Digital I/O • High sink current of 64mA • Shared interrupt capability
<p>The Model PIOD24 card can be installed in any PCMCIA Type II card slot. There are no switches or jumpers to set. Everything on the PIOD24 card is programmable including address and interrupt level. ICS Advent supplies drivers and example programs to provide the PIOD24 with complete access to a variety of programming languages and operating systems including DOS, 16-bit and 32-bit Windows (Windows 3.x, Windows 95, Windows 98 and Windows NT).</p>	<p>The DIO24-P parallel Digital I/O card provides 24 TTL/DTL compatible Digital I/O lines, interrupt input and enable lines and external connections to the PC bus power lines. It is a flexible interface for parallel input/output devices such as instruments, displays, and user constructed systems and equipment.</p>	<p>The model DIO24H is a general purpose, 24-bit, Digital I/O adapter for the PC and AT/386 compatible computers. Two of its most important features are its high current output (ISink =64 mA) and its ability to share a single IRQ line with multiple boards in the same PC.</p> <p>In general, the DIO24H consists of three 8 bit bi-directional ports and two input lines for interrupt Enable and Interrupt. The 8 bit ports are named Port A (PA), Port B (PB), and Port C (PC). Port C is special because it can be split into two 4 bit ports: PCH (port C High) and PCL (port C Low). The direction and configuration of the ports is specified by a control register on the board.</p>
<p>Specifications</p> <p>Bus PCMCIA Type II</p> <p>Channels 24</p> <p>Max Drive 5 LSTTL loads</p> <p>Logic Controller 82C55, PPI Mode 0</p> <p>Type 16-bit, 65535 counts</p> <p>Frequency 10MHz max, internal or external source</p> <p>Power Requirements 5VDC @ 47mA (typical) (65mA max)</p> <p>Operating Temperature 0 ° to 60 °C</p> <p>Storage Temperature -50 ° to 120 °C</p> <p>Humidity 5 to 95% RHNC</p> <p>MTBF >100-years (calculated)</p> <p>Connectors DB37 Female</p>	<p>Specifications</p> <p>Bus ISA</p> <p>Connectors 24 37-pin D-shell male</p> <p>Logic Controller 8255 P.P.I. Modes 0, 1, 2</p> <p>Output Low 0.45V max</p> <p>Output High 2.4V min</p> <p>Sink Current 1.7mA</p> <p>Source Current 200mA</p> <p>Operating Temperature 0 ° to 60 °C</p> <p>Storage Temperature -50 ° to 120 °C</p> <p>Humidity 0 to 90% non-condensing</p> <p>Power Requirement 170mA @ +5VDC</p> <p>Certification CE Conformity with: EU EMC Directive 89/336/EEC EU Low Voltage Directive 72/23/EEC</p> <p>OS Support Dos, Windows 95/98/NT</p>	<p>Specifications</p> <p>Bus ISA</p> <p>Channels 24</p> <p>Output Low +0.55VDC max.</p> <p>Output High 2.0VDC min.</p> <p>Sink Current 64mA</p> <p>Source Current 15mA</p> <p>Operating Temperature 0 ° to 70 °C</p> <p>Storage Temperature -20 ° to 100 °C</p> <p>Humidity 0 to 90% RHNC</p> <p>MTBF 62.71yrs (calculated)</p> <p>Connectors DB37 male</p> <p>Power Requirements 5V @ 400mA (typical)</p> <p>OS Software DOS, Windows 95/98/NT</p>
<p>Ordering Guide</p> <p>PIOD24 \$175 Card, cable, manual, software</p> <p>STB37 \$35 DB37 screw terminal</p> <p>2TK2D-6 \$3 6-inch section of SNAPTRACK</p>	<p>Ordering Guide</p> <p>DIO24-P \$115 24 I/O lines, without buffered outputs</p> <p>Accessories</p> <p>UTB-K \$135 Termination board/metal enclosure</p> <p>UTB \$85 Termination board</p> <p>STB37 \$35 Termination board for TTL only</p> <p>C1800 \$25 18-inch (457mm) cable</p> <p>2TK2D-6 \$3 6-inch section of SNAPTRAK</p> <p>TKAD \$2 DIN rail mounting clips for SNAPTRAK (2 required)</p>	<p>Ordering Guide</p> <p>DIO24H \$125 24 input - output lines with 64mA of sink current</p>

I/O

PCI 24 Digital I/O, DB37 W/High Sink Current

Datasheet #1882

**DIO24H-PCI**

- 24-Ch of Digital I/O
- High sink current of 64mA
- DOS, Windows 95/98/NT/2000
- +5 +12 -12VDC power Pins available on DB37
- Plug-n-Play
- PCI 2.1 compliant (seen past bridge)

The DIO24H-PCI provides the same features as our popular DIO24H but on the PCI bus. The DIO24H-PCI is a general purpose, 24-bit, digital I/O adapter for the newer faster PCs with PCI slots. The DIO24H-PCI has same high current output (ISink=64mA) as the DIO24H and same exact pin-out on its DB37 connector. The board has the same 8-bit ports named A, B and C with Port C still able to be split into two 4-bit ports High and Low. The added advantage of the PCI version is the automatic address and interrupt assignments used in modern OS like Windows 98, ME and 2000.

Specifications**Bus**

PCI

Channels

24

Logic Controller

8255 PIA, mode 0

Output High

2.0V

Output Low

0.55V

Sink Current

64mA

Source Current

15mA

Operating Temperature

0 ° to 70 °C

Storage Temperature

-20 ° to 70 °C

Humidity

0 to 90% (non-condensing)

MTBF

41.15yrs (calculated)

Connectors

DB37 male

Power Requirement

5V @ 400mA (typical)

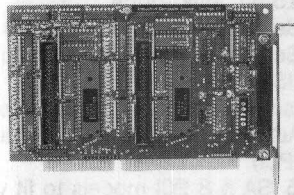
OS Support

Dos, Windows 95/98/NT/2000

Ordering Guide

DIO24H-PCI \$199

24 input/output lines w/ 64mA of sink current, CD w/drivers & e-manual

48-Port Digital I/O w/Interrupt Generation State-Change

Datasheet #1125

DIO48S/AT-P

- 48-Ch of Digital I/O
- Interrupt generation on input change of state
- Change-of-state interrupt software enabled in six 8-input ports
- Hysteresis and pull-ups on I/O lines



The DIO48S/AT-P provides 48 lines of Digital I/O in two independent 24-bit groups. Each 24-bit group uses a Programmable Peripheral Interface chip type 8255-5. Each PPI provides three 8-bit ports (A, B, and C) which can be independently configured for either input or output. Port C can also be configured in four-bit groups for input or output. Type 74LS245 tri-state transceivers provide hysteresis correction for inputs and added drive capability for inputs. The direction of these buffers is automatically set as input or output according to software command.

Specifications**Bus**

ISA

Channels

48

Logic Controller8255-5 P.P.I.
Mode 0 only**Output Low**

+0.5VDC max.

Output High

+2.5VDC min.

Sink Current

24mA

Source Current

15mA

Operating Temperature

0 ° to 60 °C

Storage Temperature

-50 ° to 120 °C

Humidity

0 to 90% non-condensing

MTBF

51.36yrs

Connectors

50-pin IDC Header/ 24 I/O lines

Power Requirements

+5VDC @ 300mA (typical)

OS SupportDos, Windows 3.1/95/
98/NT/2000**Ordering Guide**

DIO48S/AT-P \$259

Board, 48-Ch, manual and Utility disk

Accessories

UTB-K \$135

Termination panel, metal enclosure

UTB \$85

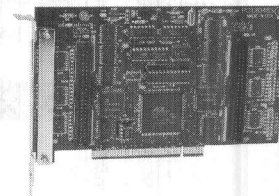
Termination board

CAB50A-6 \$39

DIO48S-P to UTB-K screw termination metal enclosure or to 2M50FC

50IDC \$49

IDC header connector for DIO48S-P

48 & 24 I/O PCI Card, Interrupt Generation On State Change

Datasheet #1730

PCI-DIO48 (48S)

- Automatic test systems
- Laboratory automation
- Robotics & machine control
- Security systems/energy management
- Relay monitoring & control
- Parallel data transfer to PC
- Sensing switch closures or TTL, DTL, CMOS Logic
- Driving indicator lights or recorders
- Dos, Windows 95/98/NT

The PCI-DIO48 and PCI-DIO48S are 48-bit parallel Digital I/O cards designed for use in computers with a PCI bus. They are programmable to either accept inputs or provide latched outputs on two groups of three, eight-bit ports.

Tristate I/O line buffers are configured automatically by hardware logic for input or output according to the programmable peripheral interface chip control register software assignment. Pull-up resistors on the card assure there are no erroneous outputs at power up until the card is initialized by system software.

The distinguishing feature for the PCI-DIO48S model is that the state of all inputs can be monitored and if one or more of the bits change states, a latched interrupt request can be generated. Therefore it is not necessary to use software to continuously poll the inputs to detect a change-of-state condition. The change-of-state interrupt is enabled by a software write command to the interrupt enable register. Once latched, the change-of-state interrupt can be cleared by a software write.

Specifications**Bus**

PCI

Channels

48

Logic Controller

8255-5 P.P.I.

Output Low

0.5VDC min

Output High

2.5VDC min

Sink Current

24mA

Source Current

15mA

Operating Temperature

0 ° to 60 °C

Storage Temperature

-50 ° to 120 °C

Humidity

0 to 90% RHNC

MTBF

48.85 yrs (calculated)

Connector

50-pin header

Power

+5VDC @ 200mA

Ordering Guide

PCI-DIO48 \$219

48 line card, manual, software

PCI-DIO48S \$329

48 line, change-of-state card, manual, software

PCI-DIO24S \$265

24 line, change-of-state card, manual, software

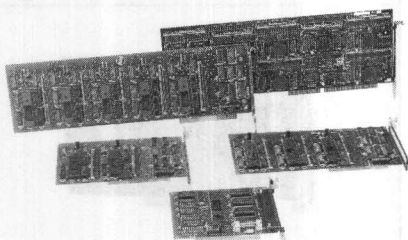
UTB-K \$135

Termination panel, metal enclosure

CAB50A-6 \$39

DIO48S-P to UTB-K screw termination metal enclosure or to 2M50FC

PCI/ISA 24 To 216 Digital I/O Lines, Buffered TTL Output



PCDIO Family

- Buffered TTL I/O lines: source 15mA, sink 24mA
- Selectable bus address (ISA)
- Selectable hardware interrupts (ISA)
- Isolation rack pin compatible
- Auto assigned address & interrupts (PCI)
- 5 ISA & 8 PCI models to fit your requirements

IFETIME
 GUARANTEE

ISA Datasheet #1143
 PCI Datasheet #1727
 (PCIDIO72-120)
 PCI Datasheet #1744
 (PCIDIO24 Series)
 PCI Datasheet #1730
 (PCIDIO48)

The ICS Advent Buffered Digital I/O family includes five ISA boards and eight PCI boards providing a selection of capacities. All boards share common engineering features. The heart of the Digital function is the 82C55A I.C., which provides bidirectional Digital functions of 24-Ch per chip.

Buffering is added to the circuitry to provide the high sinking current capabilities of these boards. This additional capacity is what makes the boards optimally compatible with isolation relay racks such as the PB24 or other compatible racks such

as OPT022. The boards will interface pin-to-pin with the PB24, PB16A or the PB8 Relay Racks using the CAB50-6 or CAB50-10 cables.

Channels 19 and 23 of each 82C55A port may be used for interrupts to the CPU. Channel 19 is used to enable the interrupt port, channel 23. On multiple 82C55A boards, all channels 19 and channels 23 are bussed together when selected for interrupt operation. When not used as interrupts, these channels function as normal individual Digital I/O lines.

Specifications

Bus

PCI or ISA

Channels

24-216

Logic Controller

82C55A

Logic

Positive True

Output Low

Logic 0 = 0-0.8VDC

Output High

Logic 1 = 2.3-5.0VDC

Sink Current

24mA per channel

Source Current

15mA per channel

Operating Temperature

0 ° to 60 °C

Storage Temperature

-50 ° to 120 °C

Humidity

5 to 95% RHNC

MTBF

All >150,000 hours

PCI-DIO24 series

960,000 hours

Connectors

82C55A

OS Support

Dos, Windows 95/98/NT/2000/ME

Ordering Guide

ISA Models

PCDIO24B-P \$115

PCDIO48B-P \$175

PCDIO72B-P \$265

PCDIO120B-P \$329

PCDIO216B-P \$499

PCI models

PCI-DIO48 \$219

48 line card, manual, software

PCI-DIO72 \$265

72 line card, manual, software

PCI-DIO96 \$299

96 line card, manual, software

PCI-DIO120 \$339

120 line card, manual, software

PCI-DIO24HD \$159

24 line card w/ 50 pin IDC connector, manual, software

PCI-DIO24HD/CT \$179

same as above w/counter/timers

PCI-DIO24DB \$159

24 line card w/DB-37 connector, manual, software

PCI-DIO24DB/CT \$159

same as above w/counter/items

Accessories

UTB-K \$135

Termination board/metal enclosure

UTB \$85

Termination board

2M50FC \$89

Termination board for Snaptrak

CAB50A-6 \$39

6-foot (1.83m) cable for termination board & G series rack

2TK2D-6 \$3

6-inch section of SNAPTRAK

TKAD \$2

DIN rail mounting clips for SNAPTRAK (2 required)

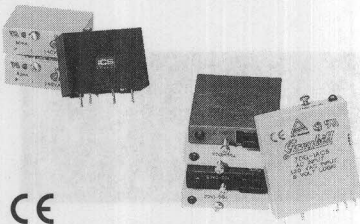
CAB50-10 \$49

CAB50-6 \$39

6-foot PB rack cable

Model	Number of Lines	I/O Space	Connector Type: 50-pin 8255 chip	Power Required	Length
PCDIO24B-P (ISA)	24	4 I/O bytes	1	5VDC@52mA	6.19-inch (157mm)
PCI-DIO24HD				.17A	4.8-inch (121mm)
PCI-DIO24DB				.17A	4.8-inch (121mm)
PCI-DIO24HD/CT				.19A	4.8-inch (121mm)
PCI-DIO24DB/CT				.19A	4.8-inch (121mm)
PCDIO48B-P (ISA)	48	8 I/O bytes	2	+5VDC@.75A	6.19-inch (157mm)
PCI-DIO48				.20A	7.15-in (181.6mm)
PCDIO72B-P (ISA) 72	12	12 I/O bytes	3	+5VDC@.8A	13.3-inch (338mm)
PCI-DIO72				.20A	12.2-inches (309mm)
PCI-DIO96	96	16 I/O bytes	4	+5VDC@3.0A	12.2-inches (309mm)
PCDIO120B-P (ISA)	120	20 I/O bytes	5	+5VDC@1.3A	13.3-inches (338mm)
PCI-DIO120				.20A	12.2-inches (309mm)
PCDIO216D-B	216	36 I/O bytes	9	+5VDC@2.0A	13.3-inches (338mm)

I/O AC/DC Modules, Relays & Isolated Inputs



Datasheet # 1523

I/O Modules

- 4KV optical isolation
- UL recognized
- CSA Certified
- Two standard sizes

Specifications

Dimensions: (H x L x W)

Std \$10

1.25 x 1.7 x 0.6-inch
(31.8 x 43.2 x 15.2mm)

Small \$10

1.0 x 1.7 x 0.4-inch
(25.4 x 43.2 x 10.2mm)

G-Series \$12

2.2* x 1.9 x 0.46-inch
(55.9 x 48.26 x 11.7mm)

*Digital output modules are 2.55-inch high due to addition of fuse.

Ordering Guide

Standard, Small & G-Series Modules

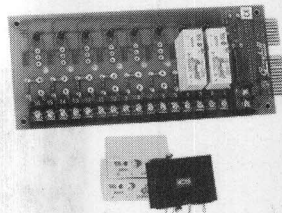
Input Modules

Standard Input Voltage			Logic in
Model	Color	Range	Min. Volts
IAC5	Yellow	90-140VAC	25V
IAC5A	Yellow	180-280VAC	50V
IDC5	White	3-32VDC	2VDC
Small			Logic in
Model	Color	Range	Min. Volts
SML-IAC5	Yellow	90-140VAC	25V
SML-IAC5A	Yellow	180-280VAC	50V
SML-IDC5	White	3-32VDC	2VDC
G-Series			Logic in
Model	Color	Range	Min. Volts
G-IAC5	Yellow	90-140VAC	25V
G-IAC5A	Yellow	180-280VAC	50V
G-IDC5	White	3-32VDC	2VDC

Output Modules

Standard			Output Voltage	Logic in
Model	Color	Range	Min. Volts	
OAC5	Black	24-140VAC	3.5	
OAC5A	Black	24-280VAC	3.5	
ODC5	Red	3-60VDC	3.5A	
ODC5A	Red	4-200VDC	3.5A	
Small			Output Voltage	Logic in
Model	Color	Range	Min. Volts	
SML-OAC5	Black	24-140VAC	3.0	
SML-OAC5A	Black	24-280VAC	3.0	
SML-ODC5	Red	3-60VDC	3.0	
SML-ODC5A	Red	4-200VDC	3.0	
G-Series			Output Voltage	Logic in
Model	Color	Range	Min. Volts	
G-OAC5	Black	24-140VAC	3.5A	
G-OAC5A	Black	24-280VAC	3.5A	
G-ODC5	Red	3-60VDC	3.5A	
G-ODC5A	Red	4-200VDC	3.5A	

Digital I/O Module Mounting Racks



Datasheet #1523

PB Family

- 4000VAC optical isolation
- Transient protection: meets the requirements of IEEE 472, surge with standing capability test
- UL recognized
- CSA certified
- CE certified
- Three standard sizes

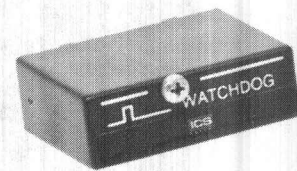
No. of Modules	Dimensions	
4	3.5 x 4.5-inch	(88.9 x 114.3mm)
8	3.5 x 8.0-inch	(88.9 x 203.2mm)
8	3.25 x 6.0-inch	(82.6 x 152.4mm)
16	3.5 x 14.1-inch	(88.9 x 356.9mm)
16	3.5 x 10.0-inch	(88.9 x 254mm)
16	3.25 x 10.0-inch	(82.6 x 254mm)
24	4.5 x 18.8-inch	(114.3 x 476.3mm)
24	3.8 x 13.5-inch	(95.3 x 341.6mm)
24	6.25 x 7.5-inch	(158.8 x 190.5mm)

Ordering Guide*

PB4	4.5 x 3.5-inch (88.9 x 114.3mm)	\$29
PB8	3.5 x 8-inch (88.9 x 203.2mm)	\$49
PB8-SML	3.5 x 6.0-inch (88.9 x 152.4mm)	\$49
PB16-G	3.25 x 10.0-inch (82.6 x 254mm)	\$85
PB16-SML	3.5 x 10.0-inch (88.9 x 254mm)	\$85
PB16A	3.5 x 14.1-inch (88.9 x 356.9mm)	\$85
PB24	4.5 x 18.8-inch (114.3 x 476.3mm)	\$135
PB24-G	6.25 x 7.5-inch (158.8 x 190.5mm)	\$135
PB24-SML	3.8 x 13.5-inch (95.3 x 341.6mm)	\$135

*see Datasheet # 1523 for cable options.

Electromechanical Modules



Datasheet #1150 & 1153

WDT5

The DRY series are simple electromechanical dry contact reed relay type modules used where solid state modules can not be used. Digital TTL transition low sent to module changes its state on relay from its normal condition. When no power exists the relay maintains the same state as its normal condition. The Watchdog or WDT family has a normal state until a watchdog state occurs and changes relay condition. A normally closed watchdog will open during a failed condition for example. The watchdog also is a Dry contact output. Standard unit then opens if not reset by a computer or other device before 2 second timeout period. Other periods available on Special Order. Contact Rating: 200V AC/DC, 0.5A rating.

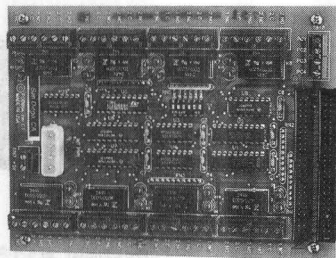
Ordering Guide

Watchdog Timer Modules

WDT5	.....	\$39
Normally closed (N.C.) watchdog modules		
WDT5-C	.....	\$49
Normally open (N.O.) contacts watchdog module		
SM-DRY5	.....	\$25
Normally open, (N.O.), 1.0A, 200V, small dry contact		
SM-WDT5	.....	\$49
Normally closed, (N.C.), small watchdog module		
DRY5	.....	\$29
Normally Open (N.O.) dry contact module		
DRY5B	.....	\$29
Normally Closed (N.C.) dry contact module		

Digital TTL External Conditioning Boards

8 Channel External Relay Card



Datasheet #1516

RB-08A

- Eight SPDT form C relays
- Fully compatible with PCDIO family
- Contacts rated at 2-Amps
- Can be enclosed in an optional UTB-B
- Up to four cards can be connected to one 24-bit Digital I/O card

The RB-08A mounts outside the host computer and contains eight Form C electromechanical relays. The card can be mounted bare or in the optional UTB-B enclosure. The RB-08A receives outputs from Port A of a 24-bit Digital I/O card, e.g., the PCDIO24-P. Read back of the relays is accomplished via Port B of the I/O card. Up to four RB-08As can be connected to one 24-bit I/O port. The lower nibble of Port C is used for read/write select of the desired RB-08A. If only one relay card is used, +5VDC from the I/O card can power the card. If more than one RB-08A is to be used, then external +5VDC is required.

Specifications

Channels

24

Channels

8

Relay Contacts

Form C, SPDT, non-latching

Max. Switched

2A, AC or DC

Max. Carry Current

3A, AC or DC

Max Switched Voltage

125VDC or AC

Max Switched Power

30VA Resistive

Operating Temperature

0 ° to 60 °C

Storage Temperature

-30 ° to 105 °C

Humidity

0 to 90% RHNC

Connectors

50 Pin Header

MTBF

102.73yrs (calculated)

Power Requirements

+5VDC @ 174mA (all relays off)

+5VDC @ 455mA (all relays on)

OS Support

Depends on digital card

Ordering Guide

RB-08A \$129

Card, manual

Accessories

UTB-B \$50

Optional metal enclosure

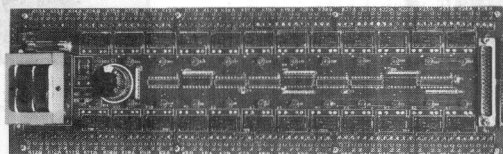
CAB50A-6 \$39

50-pin header ribbon cable both ends, 6-feet

CAB50A-3 \$24

50-pin header ribbon cable both ends, 3-feet

24-Port External Relay Card



Datasheet #1175

RBAC-24

- 24 SPDT form C relays (DPDT optional)
- 3A carry current
- Compatible with PCDIO series
- LED to indicate relay activated

The RB-24 Series are 24-port relay output cards that can be controlled by Digital inputs from the PCDIO Series of Digital I/O cards. Onboard drivers allow the card to be driven by any Digital output card that uses an 82C55A with buffered outputs with either a 37- or 50-pin connector.

Specifications

Channels

24

Relays

RB-24: 24 SPDT, Form C

RB-24/DP: 24 DPDT, Form C

Max. Switching Current

2A, AC or DC max.

Max. Carry Current

3A, AC or DC

Max. Switched Voltage

125VDC or ACrms max.

Max. Switched Power

30VA max.

Operating Temperature

0 ° to 60 °C

Storage Temperature

-50 ° to 120 °C

Humidity

45 to 85% RH, non-condensing

MTBF

102.73yrs (calculated)

Connectors

DB37 50-pin header

Power Requirements

RB-24 & /DP: +5VDC @ 3A

(all relays ON)

RBAC-24 & /DP: 120VAC @ 260mA

(all relays ON)

OS Support

Depends on digital card

Ordering Guide

RB-24 \$249

SPDT relay card, 5VDC powered, manual

RB-24/DP \$279

DPDT relay card, 5VDC powered, manual

RBAC-24/DP \$309

DPDT relay card, 120VAC powered, manual

RBAC-24 \$279

SPDT relay card, 120VAC powered, manual

Accessories

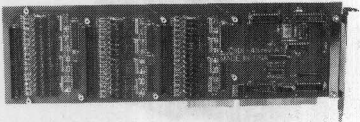
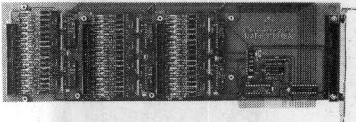
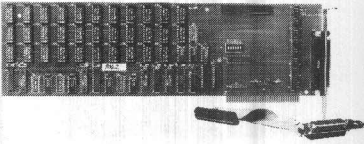
CABMLX \$19

Power cable for 5VDC version (connect to extra drive power plug.)

CAB50A-6 \$39

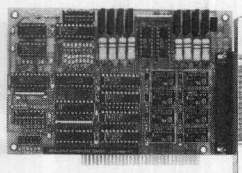
Cable, RB-24 to PCDIO series card

I/O

16/32/48 Isolated Digital Input Lines	16/32/48 Isolated Digital Output Lines	32-Ch Reed Relay Output
		
Datasheet #1176	Datasheet #1553	Datasheet #1130
DIO48I/60	IDO48	32REL-B
<ul style="list-style-type: none"> • 48 individually isolated Digital inputs • 500Vrms isolation, channel-to-channel & channel-to-PC • Onboard shields prevent contact with user voltages • 28V and 60V versions available • Generates interrupt upon change of state on input 	<ul style="list-style-type: none"> • Individually isolated Digital outputs for up to three 16-bit groups • All solid-state design permits higher throughput than possible with Electromechanical Relays • Load voltages up to 60V • Outputs at zero volts at power-on and at computer reset • On-card shields prevent accidental user contact with load voltages 	<ul style="list-style-type: none"> • Only relay card with discrete access to all relay combinations • Four banks of independently addressed relays • Multiple cards can operate in the same chassis
<p>The DIO48I cards provide 48 parallel, differential, individual input lines that are optically isolated. Protection circuits are included in case of accidental polarity reversal of the input connections. The DIO48SI adds change-of-state detection capability. When activated, latched interrupt requests can be generated when one or more bits change state.</p>	<p>The IDOxx Series cards provide 16, 32, or 48 opto-isolated differential outputs. The card plugs into expansion slots of PC/XT/AT or compatible computers. Solid-state, P-channel FET switches are used as the output elements and provide both greater reliability and much faster turn-on and turnoff time than possible with electromechanical relays. User-supplied load voltages can be from 5V to 60V.</p>	<p>The board consists of four banks of relays with 8 relays per bank. When a byte is written to a port address by the system, each of the 8-bits correlates to a relay in the corresponding bank. If the bit is a one, the relay is energized and latched, otherwise the relay is reenergized. The "A" side of each switch is brought out to the DB37 connector on the card. If the on-board jumpers are installed, then the "B" side of each switch is connected to one of four commons (one for each bank) and brought out to the connector.</p> <p>An optional cable is available to bring out the "B" side of the switches to another DB37 connector. This provides access to both sides of all 32 switches. By using wire-wrap connections, the jumper connector can also be used to create any custom switch interconnection wiring desired.</p>
Ordering Guide DIO48I/60 \$429 48-Ch, 60V, software, manual DIO16I/28 \$149 16-Ch, 28V, software, manual DIO16I/60 \$179 16-Ch, 60V, software, manual DIO16SI/28 \$189 16-Ch, 28V, state change version DIO16SI/60 \$219 16-Ch, 60V, state change version DIO32I/28 \$249 32-Ch, 28V, software, manual DIO32SI/28 \$305 32-Ch, 28V, state change version DIO32SI/60 \$349 32-Ch, 60V, state change version DIO48I/28 \$349 48-Ch, 28V, software, manual DIO48SI/28 \$425 48-Ch, 28V, state change version, software, manual DIO48SI/60 \$489 48-Ch, 60V, state change version, software, manual Accessories UTB-K \$135 Termination panel/ metal enclosure UTB \$85 Termination panel, no enclosure 2M50FC \$89 Screw termination panel CAB50A-6 \$39 Cable, DIO48I to UTB or 2M50FC	Specifications Bus ISA Channels 16, 32, or 48 Voltage Range 5V to 60V Switching Time Turn-on: 50m sec Turn-off: 2m sec Current Range 1A max steady state 2A pulse (Cable could limit the current) Switch Leakage Current 1mA Isolation 500V RMS Channel to channel & channel to computer Power Requirements +5VDC @ 540mA (48 bits) Operating Temperature 0 ° to 60 °C Storage Temperature -20 ° to 100 °C Humidity 0 to 90% RNHC MTBF >250,000hrs (calculated) Connectors DB37 OS Support Dos, Windows 95/98/NT	Specifications Bus ISA Channels 32 Switching Power 10VA Contact Rating 100VDC @ 0.5mA max. Switching Current .5A Relay Life 10 ⁸ Closures Expectancy 10 ⁸ Closures Power Requirements 5V 800mA +12VDC 50mA Operating Temperature 0 ° to 50 °C Storage Temperature -20 ° to 70 °C MTBF >150,000hrs (calculated) Humidity 0 to 90%, RHNC Connectors DB37 female OS Support Dos, Windows 95/98/NT Ordering Guide 32REL-B \$389 Card, manual, software Accessories CAB/32REL-B \$24 Optional cable for B-side connector C1900 \$25 18-inch (457 mm) cable STB37 \$35 Termination panel
	Ordering Guide IDO48 \$349 48-Ch card, manual, software IDO32 \$249 32-Ch card, manual, software IDO16 \$159 16-Ch card, manual, software	

Digital Isolated & Relay Boards

8 Isolated Inputs, 8 Reed Relay Outputs



CE

Datasheet #1145 (ISA) #1785 (PCI)

DIO8-P

- 8 electromechanical relay outputs
- 8 optically isolated inputs – AC or DC
- 500V isolation
- Input circuit filters

**LIFETIME
GUARANTEE**

The Model DIO8-P/PCI-DIO8 are half-size cards that provides isolated input and output interface for PC/XT/AT and compatible computers. The card provides eight optically-isolated inputs for AC or DC control signals and eight electromechanical relay outputs. The DIO8-P/PCI-DIO8 occupy four consecutive addresses in I/O memory space. Read and write operations are done on an 8-bit oriented basis.

Specifications

Bus	Operating Temperature
DIO8-P: ISA	0 ° to 50 °C
PCI-DIO8: PCI	Storage Temperature
Channel	-20 ° to 70 °C
8	Humidity
Voltage Input Range	0 to 90% (non-condensing)
5-24VDC or AC (50-1000Hz)	MTBF
Contact Rating	250,000 hours (calculated)
Resistive Load	Connectors
1A @ 24VDC (0.5A @ 100VAC)	37-pin DB
Inductive Load	Power Requirements
0.3A @ 24VDC (0.2A @ 100VAC)	+5VDC @ 0.5A (all relays ON)
Relay Life	OS Support
Mechanical: 10M operations	Dos, Windows 95/98/NT/ 2000
Electrical/load dependent: 200K operations	

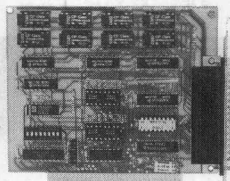
Ordering Guide

DIO8-P	\$219
Isolated relay board	
PCI-DIO8	\$239
PCI isolated relay board	

Accessories

UTB-K	\$135
Universal termination board kit with UTB & UTB-B	
UTB	\$85
Universal termination board	
C1800	\$25
18-inches (457mm) cable, female to female	
2TK2D-6	\$3
6-inch section of SNAPTRAK (for mounting 2M series termination boards)	
STB37	\$35
DB37 breakout screw termination panel	
TKAD	\$2
Din rail mounting clips for SNAPTRAK (2 required)	

8 Isolated Inputs, 8 Reed Relay Outputs



CE

Datasheet #1045

DIO16

- 8 isolated inputs
- 8 Reed relay outputs
- Nondestructive read-back of outputs
- High reliability 10VA DIP reed relays
- Power and ground provided on connector

The DIO16 offers the same features as the DIO32B, but with half the input and output channels. The DIO16 is a half length card with a single DB37 male connector mounted on the card.

Specifications

Bus	Connectors
ISA	DB37 male
Channels	Power Requirements
8 Input	+5VAC @ 0.4A
8 Output	OS Support
Voltage Input Range	Dos, Windows 95/98/ NT/2000
6-12VAC/VDC	Current Rating
Operating Temperature	10VA Resistive load
0 ° to 50 °C	Relay Life
Storage Temperature	200M operations
-20 ° to 70 °C	10VA, resistive load
Humidity	20G shock & vibration
10 to 90% RHNC	Operating Temperature
MTBF	0 ° to 50 °C
>150,000 Hrs	Storage Temperature

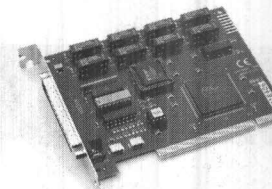
Ordering Guide

DIO16	\$179
16-port Digital I/O board	

Accessories

UTB-K	\$135
Universal termination board kit with UTB & UTB-B	
UTB	\$85
Universal termination board	
C1800	\$25
18-inch (457mm) cable, female to female	
2TK2D-6	\$3
6-inch section of SNAPTRAK (for mounting 2M series termination boards)	
STB37	\$35
DB37 breakout screw termination panel	
TKAD	\$2
Din rail mounting clips for SNAPTRAK (2 required)	

PCI 8 Isolated Inputs, 8 Reed Relay Outputs



Datasheet #1849

PCI-DIO16

- 8 Reed relay outputs (10VA resistive load)
- 8 optically isolated AC or DC inputs (6-12VAC/DC range)
- DB-37 connector for all 8 I/O
- Output ports have nondestructive feedback capability
- Same pin-out as DIO16
- Power & ground provided on connector
- Plug-n-Play
- Software compatible w/PCI-DIO32

The PCI-DIO16 is a half card PCI solution for Digital control where on board relays are required and inputs must be isolated such as in test equipment, instrumentation, process control, satellite/microwave network control, audio switching and Analog multiplexing. The reed relays are more reliable compared to electromechanical in applications of high switch count.

Specifications

Bus	Operating Temperature
PCI	0 ° to 70 °C
Channels	Storage Temperature
8 Inputs/ 8 Outputs	-20 ° to 70 °C
Voltage Range	Humidity
2.8-12VAC/VDC	10 to 90% RHNC
Contact Rating	MTBF
10VA resistive Load	>150,000hrs
Relay Life	Connectors
200M operations	37-pin DB male
20g shock & vibration	OS Support
Power Requirements	Dos, Windows 98/NT/2000
+5VAC @ .28A	

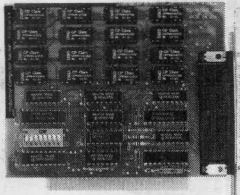
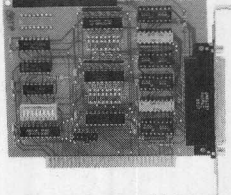
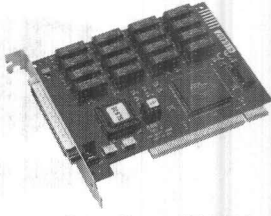
Ordering Guide

PCI-DIO16	\$269
Board, manual, and driver disks	

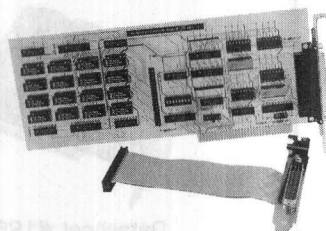
Accessories

UTB-K	\$135
Universal termination board kit with UTB & UTB-B	
UTB	\$85
Universal termination board	
C1800	\$25
18-inch (457mm) cable, female to female	
2TK2D-6	\$3
6-inch section of SNAPTRAK (for mounting 2M series termination boards)	
STB37	\$35
DB37 breakout screw termination panel	
TKAD	\$2
Din rail mounting clips for SNAPTRAK (2 required)	

I/O

16 Isolated Inputs	16-Port Reed Relay	PCI 16 Reed Relay Outputs														
																
Datasheet #1003	Datasheet #1003	Datasheet #1851														
16ISO	16REL	PCI-16REL														
<ul style="list-style-type: none">• 16 optically isolated input channels• User definable input voltage range• Power and ground provided on connector	<ul style="list-style-type: none">• 16 reed relay output channels• Nondestructive read-back• High reliability 10VA DIP reed relays• Power and ground provided on connector	<ul style="list-style-type: none">• 16 reed relay outputs (10 VA resistive load)• DB-37 connector for all 16 outputs• Nondestructive read-back capability• Connector: DB-37 male• Same pin-out as 16REL• Power & ground provided on connector• Plug-n-Play• PCI 2.1 compliant (seen past bridge)• Software compatible w/PCI-DIO32• Dos/WIN3.1/95/98/NT/2000 I/O support														
<p>The Model 16ISO is effectively the input half of the DIO32B. The DB37 female connector provides for simple user interface to the 16ISO. The input voltage range can be adjusted by the user via a socketed location for resistance.</p>	<p>The Model 16REL is the output half of the Model DIO32B. The reed relays used for output have the same 10VA rating. The DB37 male connector mounted on the board provides for simple user interface.</p>															
Specifications Bus ISA Channels 16 input Voltage Input Range 2-24VAC/VDC default 2-6V Input Isolation 400V Operating Temperature 0 ° to 50 °C Storage Temperature -20 ° to 70 °C Humidity 0 to 90% RHNC MTBF >150,000hrs (calculated) Connectors DB37 female Power Requirements +5VAC @ .24A OS Support Dos, Windows 95/98/NT/2000	Specifications Bus ISA Channel 16 Reed relay outputs Max. Switching Voltage 100VDC or Peak AC Contact Rating 10VA Max. Switching Current 0.5A Relay Life 200 x 10 ⁶ (10VDC @ 10mA) Power Requirements +5VAC @ 0.36A Operating Temperature 0 ° to 50 °C Storage Temperature -20 ° to 70 °C Humidity 0 to 90% RHNC MTBF >150,000hrs (calculated) Connectors DB37 male OS Support Dos, Windows 95/98/NT/2000	<p>The PCI-16REL offers the same features as the ISA 16REL but on the PCI bus with Plug-n-Play. The C1800 cable can attach either to the STB37 termination breakout that uses 2TK2D-6 for mounting or the UTB-K with universal termination board installed in metal enclosure.</p> Specifications <table><tr><td>Bus PCI PCI Specification 2.1, works past PCI bridge</td><td>Operating Temperature 0 ° to 50 °C</td></tr><tr><td>Channels 16 Outputs</td><td>Storage Temperature -20 ° to 70 °C</td></tr><tr><td>Contact Rating 10VA</td><td>Humidity 10 to 90% RHNC</td></tr><tr><td>Max Switching Voltage 100VDC or Peak AC</td><td>MTBF >150,000hrs (calculated)</td></tr><tr><td>Max. Switching Current 0.5A</td><td>Connector One 37-pin DB male on rear of card bracket</td></tr><tr><td>Relay Life 200M Operations</td><td>Power Requirements +5VAC @ 0.36A</td></tr><tr><td></td><td>OS Support Dos, Windows 95/98/NT/2000</td></tr></table>	Bus PCI PCI Specification 2.1, works past PCI bridge	Operating Temperature 0 ° to 50 °C	Channels 16 Outputs	Storage Temperature -20 ° to 70 °C	Contact Rating 10VA	Humidity 10 to 90% RHNC	Max Switching Voltage 100VDC or Peak AC	MTBF >150,000hrs (calculated)	Max. Switching Current 0.5A	Connector One 37-pin DB male on rear of card bracket	Relay Life 200M Operations	Power Requirements +5VAC @ 0.36A		OS Support Dos, Windows 95/98/NT/2000
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Max. Switching Current 0.5A	Connector One 37-pin DB male on rear of card bracket															
Relay Life 200M Operations	Power Requirements +5VAC @ 0.36A															
	OS Support Dos, Windows 95/98/NT/2000															
Ordering Guide 16ISO \$149 16-Ch input board Accessories C1900 \$25 18-inch (457mm) cable, male to female STB37 \$35 37-pin header to convert D-submini connectors to field wiring 2TK2D-6 \$3 6-inch section of SNAPTRAK (for mounting 2M series termination boards)	Ordering Guide 16REL \$189 Card, manual Accessories STB37 \$35 37-pin header to convert D-submini connectors to field wiring 2TK2D-6 \$3 6-inch section of SNAPTRAK (for mounting 2M series termination boards) C1800 \$25 18-inch (457mm) cable, female to female UTB \$85 Universal termination board (can be mounted with standoffs) UTB-K \$135 Universal termination board kit with UTB & UTB-B	Ordering Guide PCI-16REL \$269 PCI-16 port Reed relay Digital output board, manual, driver disks Accessories STB37 \$35 37-pin header to convert D-submini connectors to field wiring 2TK2D-6 \$3 6-inch section of SNAPTRAK (for mounting 2M series termination boards) C1800 \$25 18-inch (457mm) cable, female to female UTB \$85 Universal termination board (can be mounted with standoffs) UTB-K \$135 Universal termination board kit with UTB & UTB-B														

16 Isolated Inputs, 16 Reed Relay Outputs



Datasheet #1092



DIO32B

- 16-Ch reed relay output
- 16-Ch isolated input
- Nondestructive read back of output
- High reliability 10VA DIP reed relays
- Power and ground provided on connector

The Model DIO32B offer 32 channels of isolated Digital I/O for XT and AT compatible systems. The card is structured as 4 ports of 8 channels each. Ports A and B each offer 8 bits of optically isolated inputs. Each input is isolated from ground, all other channels and from the host PC ground. Isolation is effective up to 400VDC or peak AC. Ports A and B are input ports only. Each input channel has two leads, hi and low, with current limiting resistors to limit the input current to the optoisolator.

After the current limiting resistor, the signal is applied to a bridge rectifier to convert AC signals to DC status. The signal is then applied to the optoisolator for reading by the computer.

Specifications

Bus

ISA

Channels

16 Input/ 16 Output

Voltage Input Range

2.8-12VAC/VDC (default)

Contact Rating

10VA, Resistive Load

Relay Life

200M Operations
20 G Shock & Vibration

Operating Temperature

0 ° to 50 °C

Storage Temperature

-20 ° to 70 °C

Humidity

10 to 90%, non-condensing

MTBF

>150,000 Hrs (calculated)

Connectors

On board: DB-37 female
2nd Bracket: DB-37 male

Power Requirements

+5VDC @ 0.6A

OS Support

Dos, Windows 95/98/NT

Ordering Guide

DIO32B \$339

32-Ch board, cable/connector assembly for output connector

Accessories

UTB-K \$135

Universal termination board kit with UTB & UTB-B

C1900 \$25

18-inch (457mm) cable, male to female

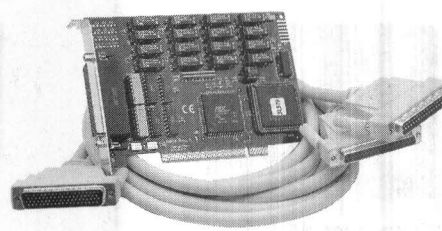
C1800 \$25

18-inch (457mm) cable, female to female

STB37 \$35

DB37 breakout screw termination panel

PCI 16 Isolated Inputs, 16 Reed Relay Outputs



Datasheet #1862



PCI-DIO32

- 16 reed relay outputs (10VA Resistive Load)
- 16 optically isolated AC or DC inputs (2.8-12VAC/DC default range)
- Takes only one PCI slot
- Outputs ports have non-destructive read back capability
- Shielded breakout cable to DB-37 male & female
- Same pin-out at connectors as DIO32B
- Power & ground
- Provided on connector
- Plug-n-Play
- PCI 2.1 compliant (seen past bridge)
- Software compatible w/ PCI-DIO16
- Dos Windows 3.1/95/98/NT/2000 I/O support

The PCI-DIO32 offers the same features as the ISA DIO32B plus an included breakout shielded cable that goes from high density connector on the rear of board to two DB37 connectors with male for outputs and female for isolated inputs. Also with a PCI bus, no address switch is required. The C1800 & C1900 cable allows for 18 inch extension of ribbon cable to allow entry into the UTB-K metal box and termination board when not installed in a metal enclosure. The shielded DB37 male output relay cable requires DB37 gender changer GC37PF when not using C1800 cable to directly interface to STB37 or UTB.

Specifications

Bus

PCI

Channels

16 Input/ 16 Outputs

Voltage Range

2.8 - 12VAC/VDC (Default)

Relay Life

200M Operations
20G Shock & Vibration

Contact Rating

10VA, Resistive Load

Operating Temperatures

0 ° to 50 °C

Storage Temperature

-20 ° to 70 °C

Humidity

10 to 90% RHNC

MTBF

>150,000 Hrs (calculated)

Connectors

One DB78-pin male on rear of card bracket, included shielded cable fanout to two DB37 with one male and one female

Power Requirements

+5VAC @ 0.60A

OS Support

Dos Windows 95/98/NT/2000

Ordering Guide

PCI-DIO32 \$415

PCI 16 isolated inputs, 16 relay outputs, manual, driver disks

Accessories

UTB-K \$135

Universal termination board kit with UTB & UTB-B

C1900 \$25

18-inch (457mm) cable, male to female

C1800 \$25

18-inch (457mm) cable, female to female

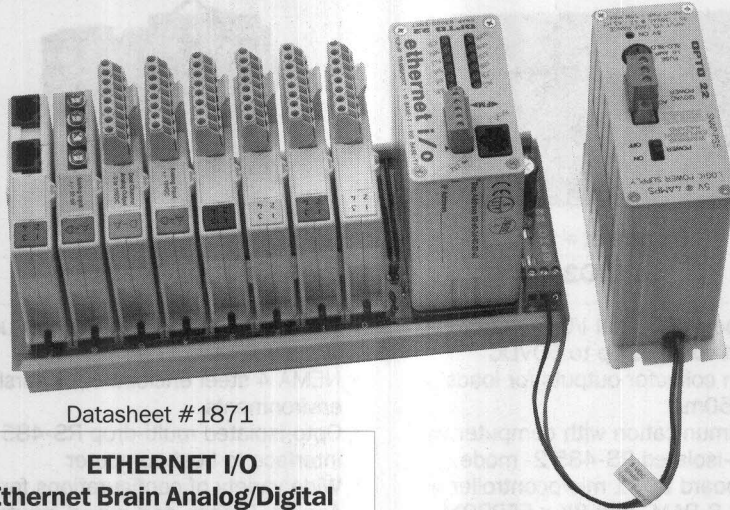
STB37 \$35

DB37 breakout screw termination panel

GC37PF \$10

DB37 gender changer

Ethernet I/O



Datasheet #1871

ETHERNET I/O

Ethernet Brain Analog/Digital

Ethernet I/O connects you to the real world in ways nothing else can. Imagine your factory manager being emailed at home or in their office about an Alarm condition in the factory, or better yet calling and paging them of a condition needing immediate attention. Then being able to browse the Internet to a specific IP address to check various equipment and environmental conditions in the factory without leaving your desk. Finally, logging in with password protection and controlling the on/off status of equipment from a computer or even a cell phone with Internet access. This is not the factory, lab or business of the future: this is the real world of ETHERNET I/O.

ETHERNET BRAIN

Compact, flexible, high performance I/O and communication processor that uses pure TCP/IP transport protocol and an assortment of application-level protocols over its built in Ethernet controller.

I/O MODULES

Digital modules are compact versions electrically similar to standard external AC and DC modules used widespread in the industry. The output modules are the familiar AC and DC solid state relays to turn on and off any AC or DC powered device. The input modules are the familiar AC and DC power detection modules that can detect whether any power source is on or off. Digital modules are also available in dry contacts or used as Counter inputs. Analog modules come in both A/D and D/A with interfaces for everything from temperature measuring

thermocouples, voltages or 4-20mA current loop to Analog output voltages or Current loop 4-20mA. Communication modules exist for both RS-232 and RS-485 to communicate over the net to PLC or other external equipment using these serial interfaces.

MOUNTING RACKS

The Ethernet I/O mounting racks are DIN-rail or panel-mounted circuit boards with connections for the Ethernet Brain and I/O modules. Racks come with 4,8,12 and 16 module slots.

POWER SUPPLIES

Power supplies come in either AC or 24VDC. These power the mounting rack for the Brain and modules. Power supply also is panel mount or can optionally be DIN-rail mounted.

- Pure TCP/IP protocol
- 100Mbps fast Ethernet support
- Built-in Web server
- Monitor plant data over company Internet or Intranet
- Acquire supervisory control data with SCADA software
- Compact, flexible, high performance processor
- Familiar easy to use Digital I/O modules
- Analog Input/Output modules
- 4,8,12 and 16 module mounting racks
- AC or 24VDC Power Supplies
- RS232 and RS485 Communication modules

Ordering Guide

SNAP-B3000-ENET \$695

Ethernet Brain Analog/Digital

Racks

SNAP-B4M \$77

4 module rack

SNAP-B8M \$94

8 module rack

SNAP-B12M \$112

12 module rack

SNAP-B16M \$161

16 module rack

Modules

SNAP-IAC5 \$42

4-Ch ENET AC input, 90-140VAC

SNAP-IAC5A \$42

4-Ch ENET AC input, 180-280VAC

SNAP-IDC5 \$42

4-Ch ENET DC input, 10-32VDC

SNAP-IDC5D \$42

4-Ch ENET DC input, 2.5-28VDC

SNAP-OAC5-I \$42

4-Ch ENET AC output, 12-280VAC

SNAP-ODC5-I \$42

4-Ch ENET DC output, 5-60VDC

SNAP-ODC5R5 \$45

4-Ch ENET dry output, NOR closed

SNAP-ODC5R \$45

4-Ch ENET dry output, NOR open

SNAP-SCM-232 \$245

2-port RS232 ENET COM module

SNAP-SCM-485 \$245

2-port RS485 ENET COM module

SNAP-AIV-4 \$245

4-Ch A/D ENET -10/+10V module

SNAP-AITM \$182

2-Ch A/D TC ENET type E, J OR K

SNAP-AITM-2 \$182

2-Ch A/D TC ENET type T, B, C, D

SNAP-AOA-23 \$182

2-Ch D/A ENET current 4-20mA

SNAP-AOV-25 \$182

2-Ch D/A ENET output 0-10VDC

Power Supply Options

SNAP-PS5 \$200

120VAC P/S for Ethernet I/O

SNAP-PS5-24DC \$200

24VDC P/S for Ethernet I/O

Accessories

SNAP-PSDIN \$28

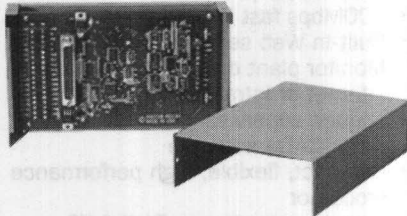
P/S DIN rail adapter

SNAP-RACKDIN \$11.25

Rack DIN rail clip

Remote Data Acquisition

Remote 12-Bit, 8-Channel A/D MF Module



Datasheet #1461

RAD128

- Eight single-ended channels
- Eight Digital I/O lines
- Eight extra Digital outputs
- Communicates over Serial RS-485 line to PC
- Three 16-bit Counter/Timers
- Simple ASCII-based programming
- Expandable w/AT16DC-P

The Model RAD128 is an intelligent, 8-Ch, multifunction A/D module which communicates with the host computer via RS-485 Serial Interface. This allows up to 31 RAD128 to be connected to a single RS-485 port PC (RS-485 adapter not included). * A Single RAD128 can support up to AT16DC-P external 16-Ch Mux Modules that can directly support multiple sensors directly. The AT16DC-P uses Digital outputs from RAD128 to control channel and variable gain selection on board the AT16DC-P.

*See the Communications section of web for RS-485 Board.

Specifications

Interface RS488	Voltage Ranges ±5V, ±10V, 0-5V, 0-10V
Channels 8 single-ended	Operating Temperature 0 ° to 65 °C
Controller 82C54-2	Storage Temperature -20 ° to 70 °C
Digital Input Logic High: +2.0V to +5.0V @ 20mA max. Logic Low: -0.5V to +0.8V @ 0.4mA max.	Humidity 5 to 95% RHNC MTBF 31.39-years (calculated)
Gain Drift ±5ppm	Power Requirements Opto-Isolated Section: 7.5 to 35VDC @ 7mA Local Power: 7.5 to 16VDC @ 75mA
Input Voltage Isolated: 300V minimum Non-isolated: -7V to +12V	OS Software Dos, Windows 95/98/NT

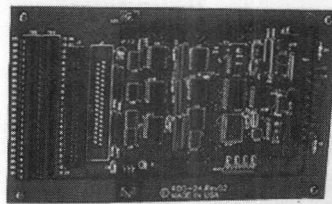
Ordering Guide

RAD128 \$349
Remote, 12-bit, 8-Ch A/D MF module

Accessories

UTB-B \$50
Optional metal enclosure
CONV485/DB9 \$49
DB9 RS232 to RS485 converter, only \$45
when purchased with our remote serial I/O
products
C1800Y \$45
Y cable for interfaces to additional LVDT8 P's
or AT16-P's

Remote 24 Channel Digital I/O



Datasheet #1377

RDIO24

- 24 port of Digital I/O
- Input voltages up to 50VDC
- Open collector outputs for loads up to 350mA
- Communication with computer via opto-isolated RS-485 2- mode
- On-board 8031 microcontroller w/ 8K x 8 RAM, and 8K x EEPROM
- Change-of-state flag readable via the serial port

Specifications

Interface

Interface RS485 serial

Channels

Up to 24. Can be programmed, on a bit-by-bit basis, on an 8-bit byte basis, or on a 24-bit word basis. In this latter case, there would be no capability for Digital outputs.

Sample Rate

Programmable from 14Hz to 1kHz.

Software Counters

There are 16-bit software counters on all bits programmed to be inputs. These can be programmed to increment on either rising or falling edges.

Change of State Detection

Change-of-state flags can be set on any enabled input bits and can be read via the serial port.

Logic Input Low

-0.5V to +0.8V.

Logic Input High

+2.0V to +5.0V

Low-level Input Current

-450 mA maximum

Operating Temperature

0 ° to 65 °C

Storage Temperature

-50 ° to 120 °C

Humidity

5 to 95% RH non-condensing

MTBF

57.07-years (calculated)

Power Requirements

7.5 to 16VDC @ 150mA

OS Software

Dos, Windows 95/98/NT

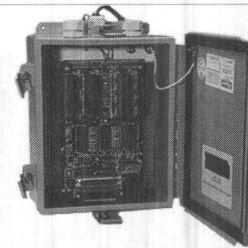
Ordering Guide

RDIO24 \$299
Remote 24-Ch Digital I/O card, manual,
software

Accessories

UTB-B \$50
Optional metal enclosure
CONV485/DB9 \$49
DB9 RS232 to RS485 converter, only \$45 when
purchased with our remote serial I/O products

Remote Intelligent Data Acquisition & Control System



RIDACS601

- Intelligent Analog & Digital I/O unit w/multiplexer
- NEMA 4 steel enclosure for harsh environments
- Opto-isolated multi-drop RS-485 interface to host computer
- Wide variety of configurations for Analog, Digital, and mixed inputs
- Data stored in RAM can be accessed at convenience of the host computer
- Thermocouples, RTO, strain gauge, voltage & current inputs

Distributed Input/Output is commonly used to reduce installation cost, inhome run line wiring, and potential noise interference. Remote pods installed in RIDACS systems let you install interfaces and control outputs close to the sensors and controllers and provide communication with a host computer via a two-wire, high-noise-immunity serial communications network. The two-wire connection keeps the number of cables and connectors to a minimum and simplifies installation and overall cost. Further, optical isolation at each pod prevents ground loop problems.

Specifications

Interface RS485 serial	Humidity 100% RH non-condensing
Channels 16 differential	MTBF AT16-P: 124,000hrs RAD128: 275,000hrs Power Supply: 51,000hrs
Resolution 12-bits	Power Requirements AC 115AC Isolated DC 9 to 35VDC 7mA
Gains .5-1000	OS Software Dos, Windows 95/98/NT
Operating Temperature 0 ° to 65 °C	
Storage Temperature -20 ° to 70 °C	

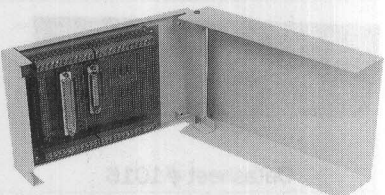
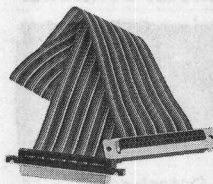
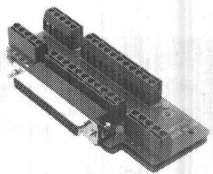
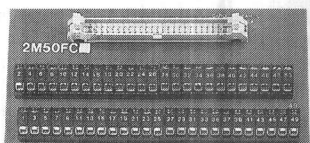

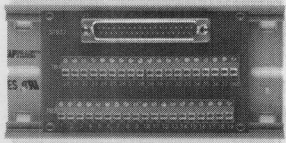

Ordering Guide

RIDACS601 \$1139

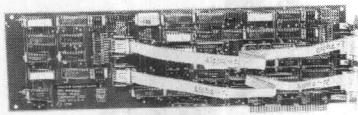
6 - Remote Intelligent Data Acquisition &
Control System

Accessories

CONV485/DB9 \$49
DB9 RS232 to RS485 converter, only \$45
when purchased with our remote serial I/O
products

<p>Universal Termination Board Kit</p> 	<p>DB37 Ribbon Cables</p> 	<p>Rear Mount Termination Board</p> 
<p>UTB-K</p> <ul style="list-style-type: none"> Screw terminal breakout for DB25, DB37, and 50-pin header Breadboard area Metal enclosure included Dimensions (H x W x D): 8.5 x 5.25 x 2-inch 	<p>C1800 Cables</p> <p>C1800 - DB37 Ribbon Cable Female to Female Model C1800 is a 37 conductor ribbon cable, 18-inch, DB37-S at both ends. For connecting STB37 AT16-P or LVDT8-P to any of our I/O board with DB37 male connector. Model C1801 same as C1800 but 36-inch length. Model C1900 is for use with AOB12 and 32REL.</p> <p>C1800Y - DB37 Y Ribbon Cable 18-inch (457mm) cable - C1800Y allows multiple attachments of AT16-P, AT16DC-P and UTB-K to A/D cards such as AD12-8 and PCI-AI/1216. All three connectors are DB37-S.</p>	<p>ADAP37</p> <p>The ADAP37 is a DB37 Screw Termination Board that mounts directly to the rear DB37P connectors on most I/O boards. Popular where no ribbon cable is desired and room for external mounting is limited. Rear of board is shielded to prevent shorting accidents.</p>
<p>Universal Termination Board Kit The model UTB-K kit is composed of a Universal Termination Board (UTB) with screw terminals for 50 conductors, populated with connectors DB25-P, DB37-P and 50 pin header. Includes metal enclosure (UTB-B).</p> <p>Universal Termination Board The model UTB is a universal termination board with screw terminals for 50 conductors, populated with connectors DB25-P, DB37-P, and 50 pin header. Use with C1800, C1801, C1900, S1600A, and K1800A, and as last board in chain of AT16-P and LVDT8-P's. A breadboard area provides for your special requirements. Also included: holes for standoffs or installation in a metal enclosure.</p> <p>Universal Metal Box Enclosure The UTB-B is an optional metal enclosure for the screw termination board UTB, AT16-P, AT16DC-P, LVDT8-P, or RB-08A. The flip up metal cover has front opening for ribbon cable access.</p>	<p>Ordering Guide</p> <p>C1800 \$25 18-inch (457mm) cable, female to female</p> <p>C1800Y \$45 18-inch Y cable DB37 female to two DB37 females</p> <p>C1801 \$29 DB37 Ribbon cable female to female 36-inch</p> <p>C1900 \$25 18-inch (457mm) cable, male to female</p>	<p>Ordering Guide</p> <p>ADAP37 \$49 DB37 Rear Mount Termination Board</p> <p>50-Pin Header Breakout Screw Termination Panel</p>  <p>2M50FC</p> <p>Model 2M50FC is a 50-pin inline header that converts 50-pin ribbon connector to field wiring; mounts in a 6-inch section of Snaptrack (optional)</p>
<p>Ordering Guide</p> <p>UTB-K \$135 Universal Termination Board Kit with UTB & UTB-B</p> <p>UTB \$85 Universal termination board</p> <p>UTB-B \$50 Universal Termination Board Box</p>	<p>Snaptrack 6-inch Mounting Section</p> 	<p>Ordering Guide</p> <p>2M50FC \$89 50 Pin Ribbon Header Screw Termination Panel</p> <p>Accessories</p> <p>TKAD \$2 Din Rail Mounting Clips for SNAPTRAK (Two required)</p> <p>2TK2D-6 \$3 6-inch section of SNAPTRAK (for mounting 2M Series Termination Boards)</p>
<p>DB37 Breakout Screw Termination Panel</p> 	<p>2TK2D-6</p> <p>This is 6-inch section of SNAPTRAK for mounting Screw Termination Boards such as 2M50FC, 2M26FC, and STB37.</p>	<p>DB37 Gender Changer</p> 
<p>STB37</p> <p>STB37 is a 37-pin male screw termination breakout panel with holes for stand offs or sized for Snap Track mounting.</p> <p>Ordering Guide</p> <p>STB37 \$35 37-pin screw termination panel</p>	<p>Ordering Guide</p> <p>2TK2D-6 \$3 6-inch section of SNAPTRAK (for mounting 2M Series Termination Boards)</p> <p>TKAD \$2 Din rail mounting clips for SNAPTRAK (2 required)</p>	<p>This gender changer basically takes any DB37 Male connector and converts it to female when trying to connect up to another DB37 Male connector.</p> <p>Ordering Guide</p> <p>GC37PF \$10 Gender changer DB37 female to female</p>

1-4 Axis Quadrature Encoder Input Cards



Datasheet #1141

5312B-4

- Accepts inputs from incremental or quadrature encoders, or pulse sources
- Digitally filters inputs with selectable sampling rates
- 1.2MHz maximum quadrature input pulse rate
- High-speed counting with 24-bit presetable counters, which may be cascaded to provide greater range

This card provides inputs and decoding for up to four incremental quadrature encoders. For each encoder, phase 0, Phase 90, and Index Pulse inputs are provided. Inputs may be single-ended or differential. Power (+5V) and ground connections are provided for encoder use if needed. Inputs are conditioned by a four-stage digital filter.

Five jumper-selectable sample clock frequencies, ranging up to 10 Mhz, are available for filter use. Noise immunity may be maximized by selecting the lowest frequency compatible with the highest input rate expected. The maximum input rate in the quadrature decode mode is approximately 1.2MHz. The maximum input rate in the count mode is approximately 4.8MHz, if the digital filter is bypassed.

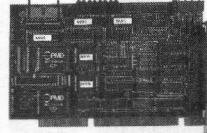
Specifications

Number of Axes 1, 2, 3, or 4	Operating Temperature 0 ° to 70 °C
Encoder Inputs Phase 0, Phase 90, Index Pulse	Storage Temperature -40 ° to 85 °C
Interrupt Generator Index Pulse Over/Underflow Compare Value Match	Humidity 5 to 95% (non-condensing)
Counter Modes Quadrature Decoding Pulse/Direction Input Count Pulse Input Up/Down Count	Connectors DB9 per Axis
Power Requirements 6.1A (with four quadrature encoders +12VDC 10mA, -12VDC 10mA)	Software Library C, C++ BASIC Pascal Visual Basic

Ordering Guide

5312B-1	\$575
1 Axis, Card ONLY	
5312B-2	\$675
2 Axis, Card ONLY	
5312B-3	\$799
3 Axis (Requires - 2 slots), Card ONLY	
5312B-4	\$909
4 Axis (Requires - 2 slots), Card ONLY	
5312DEV	\$399
MOTIONHDBK, CAB53	
5312LABVIEW	\$249
LabView DLL for 5312B-x	
5312NT/DRV	\$249
NT driver for 5312B cards, manual	

DSP Based 1 - 4 Axis Servo Motor Controller



Datasheet #1534

5650A Series

- PMD DSP control Chipset
- PID with velocity feed forward Servo Control Loops
- 16-bit Analog or 10-bit PWM command signal output
- 32-bit position, velocity, Accel and jerk registers
- Status LED lights for diagnostics
- Open architecture
- Software libraries for C, C++ and Visual Basic and Drivers for DOS, Windows 95/98/NT available

The 5650A is the designer's choice for low-cost, host dependent servo motion control. The heart of the 5650A is its PMD 1401A DSP chipset. The chipset handles the servo algorithms with PID with velocity feed forward servo algorithm for all axes. The dedicated DSP frees the host CPU for other tasks and protects motion control activities from host software problems. 16-Bit and 32-bit libraries with C, C++ and Visual Basic examples are provided. Windows NT drivers are optionally available.

Specifications

Number of Axis 4
Motion Profiles (Axis Independent) Velocity, Gearing, Trapezoidal, S-Curve
Controller Chipset PMD MC1401 v. 2.11, Custom ASIC, 25MHz DSP Position Feedback, Incremental Quadrature Encoder (Res. X4) 1.0MHz, differential or single-ended
Axis Dedicated I/O TTL compatible, 4.0mA sink on outputs
Axis Inputs: positive & negative limits, home input, general purpose I/O, 8 lines TTL compatible, bidirectional, 4.0mA sink on outputs, direct access from host CPU
Operating Temperature 0 to 70 °C
Humidity 20 to 95% RHNC
Power Requirements +5VDC @ 1.1A, +12VDC @ 10mA, -12VDC @ 10mA

Ordering Guide

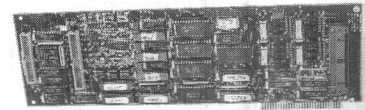
5650A	\$949
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4-axis DSP Servo Controller, Board Only

Accessories

TB50N-S	\$79
Termination board for 5312-x & 5650A	
CABDIO-36	\$39
Digital I/O cable 36-inch (914mm)	
CAB5650-36	\$59
Interface Y-cable 36-inch (914)	
5650ADEV	\$495
Software drivers/demos, manuals, 4-axis cable & two terminal boards, digital cable & terminal board, PC Certify Pro, VisSim and Motion Handbook	

1-3 Axis Servo Motor Controllers



Datasheet #1016

5638 Series

- Independent controller per axis
- 12-bit DAC output
- 32-bit registers for velocity, position & acceleration
- 16-bit Digital I/O
- Digital PID control loop filter
- Extra onboard quadrature decoder

The Model 5638 provides precise control of one to three motors without increasing overhead to the host CPU. The card uses the National Semiconductor LM628 motion control IC, which has a command set consisting of 23 commands. These commands control a variety of tasks including start motion, stop on error, and mask interrupts. The card also features 16 bits of general purpose I/O and an extra quadrature decoder.

The Model 5638 provides the control element in motion control systems consisting of a controller within a computer, a motor with an incremental encoder, and a motor drive amplifier with a power source. The card allows complex positioning and velocity profiling. Each card intelligently controls one, two or three servo motors or other servo mechanisms. The motors may be controlled simultaneously, or each motor may be controlled independently.

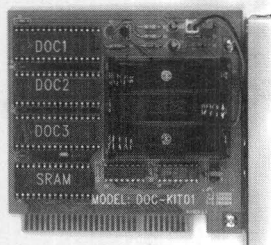
Specifications

Number of Axis 1, 2, 3
Motor Amplifier Output ±10V
Resolution 12-bits
Encoder Compatibility TTL and ±12V encoders with quadrature output
Maximum Encoder Rate 1MHz
Servo Update Time 4 kHz (250 microseconds)
Operating Temperature 0 ° - 70 °C
Connectors 40-pin Header (J1, J2) 34-pin Header (J3)
Power Requirements +5V @ 800mA +12V @ 50mA -12V @ 75mA

Ordering Guide

5638-1	\$625
1 axis controller, Card ONLY	
5638-2	\$725
2 axis controller, Card ONLY	
5638-3	\$1149
3 axis controller, Card ONLY	

Disk On Chip Flash Carry Board



Datasheet #1845

Doc Flash

- Three 32-pin DIP JEDEC standard sockets for DISKONCHIP™
- Up to 3 flash drives or one large drive
- Low power, low cost ISA design
- Uses single chip Plug-n-Play flash disks
- Bootable when emulating first hard drive
- True FFS embedded for drive emulation
- One 28-pin socket for optional 8Kb battery-backed SRAM
- High-performance sustained read: 700kB/sec write: 240kB/sec, burst read or write: 5MB/sec
- Embedded ECC/EDC, third generation wear leveling, auto bad block management on board provides maximum reliability for potentially 1,000,000 writes
- Support for Dos, Windows 95/ME/NT along w/own internal support where no OS required
- Device drivers available for QNX, pSOS+, VxWorks, Flite

The DOC-FLASH provides an easy to use, low cost ISA platform that allows the installation of up to three DISKONCHIP™ or PROMDISK™ type integrated flash memory devices and one 8MB SRAM battery backed with three AA batteries for up to 10 years. These integrated memory chips can be used to emulate up to three drives or with software utilities from the manufacturer of these chips be combined into one larger drive. The DISK ON CHIP operates as an embedded TrueFFS with its own room on board that allows the chip to become a bootable or a non-bootable drive with no supplied software. The DOC-FLASH is the embedded drive solution when hard drive and other mechanical drives are unacceptable.

Specifications

Memory Support

From 2MB to 288MB per socket.

Sockets

Quantity 3 standard JEDEC 32-pin EEPROM type

Quantity 1 standard 28-pin SRAM 8 by 8K

Operating Temperature

0 ° to 60 °C board alone,
DOC are 0 ° to 70 °C

Relative Humidity

5 to 95%, non-condensing

MTBF

Board is greater than 500,000hrs

Disk On Chips are:

MediaSize*1,000,000*0.75

Expected Life Time= _____
(Number of bytes written per day)

Vibration

5~17Hz, 0.1-inch double amplitude
displacement

17~640Hz 1.5G acceleration peak to
peak

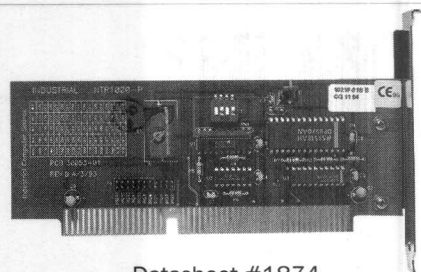
Power Requirements

85-90mA at 5VDC (without DISK ON
CHIPS which use 40-50mA each)

Ordering Guide

DOC-FLASH	\$39
Disk on Chip Flash Carry Board, manual	
MD2800-D08	\$65
8MB Disk On Chip Module	
MD2203-D288	\$1799
288MB Disk On Chip Module	
MD2203-D144	\$849
144MB Disk On Chip Module	
MD2202-D64	\$399
64MB Disk On Chip Module	
MD2202-D32	\$189
32MB Disk On Chip Module	
MD2202-D16	\$115
16MB Disk On Chip Module	

Network Time Reference Cards



Datasheet #1874

NTR Series

- Stability of ± 1 to ± 10 seconds a month means no more reliance on the grossly unstable Dos clock
- PCI & ISA versions available, providing a choice of architectures to meet your system requirements
- Auto-Update of DOS Clock from 1 minute to over 40 days, allows flexible setting to satisfy your application needs
- Supports Windows 95/98/NT

The NTR Series Time Cards are designed to substitute a more accurate and stable clock into the individual PC. When external time references are not available, the NTR can provide the time accuracy needed that the standard computer clock cannot supply. The software utilities available with the card allows the NTR Series Time Cards to be the time reference in a network for other computers. With free software utilities available on the web, or external hardware, the NTR Series Time Cards provide a solid foundation for even more accuracy by updating the NTR Series Time Cards from an external government time standard source such as modem, web connections, radio WWW, or GPS.

Specifications

Stability

NTR2000-P

± 1 second per month

NTR2100-P

± 5 second per month

NTR1000-P

± 10 second per month

Note: The NTR2100-P and

NTR2000-P require the board to be powered to maintain ± 1 second and ± 5 second stability. Under battery power, the boards revert to ± 10 seconds per month.

TCXO Stability

<1ppm

Aging Rate

3ppm

Operating Temperature

0 ° to 50 °C

Storage Temperature

-10 ° to 70 °C

Interrupt Levels

(NTR1000-P & NTR2000-P only)

Extended AT Interrupts

Certification

CE Conformity with:

EU EMC Directive 89/336/EEC

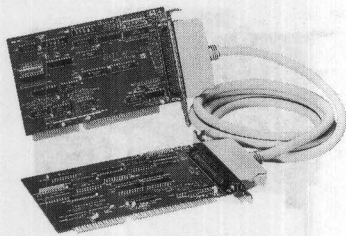
Eu Low Voltage Directive 72/23/EEC

Ordering Guide

NTR1000-P	\$179
ISA +/- 10 sec version, software, manual	
NTR2000-P	\$199
ISA +/- 1 sec version, software, manual	
NTR2100-P	\$269
PCI +/- 5 sec version, software, manual	

Specialty IEEE 488 Boards

IEEE 488 ISA/PCI Cards	Serial To IEEE 488 Controller
 <p>Datasheet #1451</p>	 <p>Datasheet #1452</p>
PC488 Family	MICRO488/P
<ul style="list-style-type: none"> • IEEE 488 ISA/PCI cards • 8-bit PC & AT Bus compatibility (ISA) • 330Kb/sec transfer (PC488) • Auto address & interrupts (PCI) • 1MB/sec transfer (AT & PCI) • Dos, Windows 95/NT support 	<ul style="list-style-type: none"> • Smallest serial to IEEE 488 controller available • Controls up to eight IEEE 488 instruments • Requires no external power supply • Programmed with concise ASCII commands
<p>The PC(AT)488 Series of cards converts the PC or PC/AT into an IEEE 488.2 compliant controller. The PC488 and PCAT488 come with both DOS and Windows 3.1 drivers. The WIN95 and iWINNT models only have the Windows 95 and Windows NT drivers respectively.</p>	<p>Scarcely larger than a standard IEEE 488 connector, the MICRO488/P is the smallest serial to IEEE 488 controller on the market. The MICRO488/P package includes a DOS-based utility program that allows you to instantly verify its operation, as well as communicate with instruments attached to the bus.</p>
<p>Specifications</p> <p>IEEE 488 Controller: NEC μPD7210 PCI: 7210</p> <p>Connectors Accepts standard IEEE 488 connector with metric studs</p> <p>Dimensions All half cards (ISA & PCI)</p> <p>Multiple Boards: Up to 4 boards can be installed in one PC</p> <p>IEEE Base I/O Addresses: ISA: &h02E1, &h22E1, &h42E1, or &h62E1 PCI: Auto address</p> <p>Operating Temperature 0° to 70 °C</p> <p>Humidity 0 to 95% RH non-condensing</p> <p>PC488</p> <p>Max.Transfer Rate 330 kB/sec</p> <p>DMA Channels 0, 1, 2, & 3 (jumper selectable)</p> <p>Interrupts IRQ 2, 3, 4, 5, 6, or 7</p> <p>Power Requirements +5V @ 650mA max</p> <p>PC488/PCI</p> <p>Max.Transfer Rate: 1MB/sec</p> <p>Interrupts Autoselect</p> <p>Power 5V @ 500mA</p> <p>PCAT488</p> <p>Max.Transfer Rate 1 MB/sec</p> <p>DMA Channels 16-bit DMA on channels 5, 6, & 7; 8-bit DMA on channels 0, 1, 2, & 3 (jumper selectable)</p> <p>Interrupts: IRQ 2, 3, 4, 5, 6, or 7 (8-bit slot); IRQ 3-7, 9-12, 14, or 15 (16-bit slot)</p> <p>Power Requirement: +5V @ 1A max</p>	<p>Specifications</p> <p>Serial</p> <p>Electrical RS-232</p> <p>Duplex Full with echo/no-echo</p> <p>Data Bits 8 bit ASCII</p> <p>Stop Bit: 1 or 2</p> <p>Parity None</p> <p>Baud Rates 300, 1200, 2400, 4800, 9600 and 19,200 set automatically upon the receipt of a carriage return from the host computer.</p> <p>Terminator On Transmit, software configurable as LF, CR, LF-CR, or CR-LF; On receive, CR</p> <p>Handshaking Supports Clear to Send (CTS), Request to Send (RTS) and XON/XOFF, software configurable.</p> <p>Serial I/O Buffers 20 character input buffer</p> <p>IEEE 488</p> <p>Controller Subsets C1, C2, C3, C4, and C28</p> <p>Terminator Programmable for LF, CR, LF-CR, CR-LF, and EOI</p> <p>Connector Plugs directly into a standard IEEE 488 female receptacle.(instrument or cable)</p>
<p>Ordering Guide</p> <p>PC488 \$399 Card, manual, DOS & Windows 3.1x drivers</p> <p>PC488/PCI \$499 Card, manual, Windows 95 & NT Drivers</p> <p>PCAT488 \$499 Card, manual, DOS & Windows 3.1x drivers</p> <p>PCAT488-NT/95 \$499 AT card, manual, Windows 95 & NT drivers</p> <p>Accessories</p> <p>CAB488-3 \$89 3 ft. shielded IEEE 488 cable</p> <p>CAB488-6 \$109 6 ft. shielded IEEE 488 Cable</p>	<p>Ordering Guide</p> <p>MICRO488/P \$399 Interface, manual, cable</p>

ISA Bus Expansion Interconnect Kit

Datasheet #1470

ECIK-2001

- AT Bus expansion for ISA chassis
- Fits in many laptop chassis expansion slots
- Transparent to system start-up
- Permits power down on expansion chassis
- Supports Plug-n-Play
- Operating system independent

The model ECIK-2000 offers chassis expansion for applications requiring additional ISA expansion slots but not requiring additional computing power. The transmitter card of the set plugs into an open expansion slot of the host chassis. The receiver card plugs into the slave chassis. Attach the interconnection cable between the chassis to ease installation in racks or on work benches or between a portable unit and test stand.

The slave chassis may be powered down without shutting down the host system. This permits the easy replacement of boards under test or interface cards to sensors without interrupting communications between the host and other network nodes or serial interfaces.

The transmitter and receiver card set is tolerant of all operating systems including Plug-n-Play systems such as Windows® 95.

Specifications**Bus**

16-bit AT

Wait State

Jumper selectable for 0 or 1

Power

1.3A @ +5VDC - transmitter card

1.4 @ +5VDC - receiver card

Max Bus Clock

16MHz

Max Cable Length

6.5-foot (2m)

Cable Supplied

3.5-foot (1m) or 6.5-foot (2m)

Operating Temperature

0° to 60 °C

Storage Temperature

-50° to 120 °C

Humidity

5 to 90% RHNC

MTBF

269,000hrs calculated

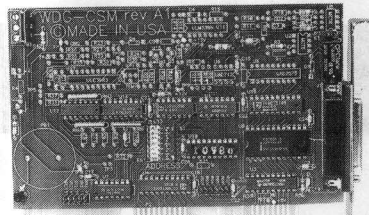
Ordering Guide

ECIK-2000 \$569

Transmitter and receiver cards, 3.5-foot (1m) interconnect cable

ECIK-2001 \$619

Same as above with 6.5-foot (2m) interconnect cable

Multifunction Watchdog Timer Card

Datasheet #1190

WDT500-P

- Software selectable time-out: 10ms to 4800 seconds
- Relay output & reset line
- Dos, Windows 95/98/NT support
- Optional temperature monitor/ alarm, fan speed detect & buzzer plus more (WDT501-P)

The basic model, WDT500-P provides a software selectable timeout from 10 microseconds to 4800 seconds. In the event that your application program does not reset the card during that period, a relay output and/or a reset line output is available to reset the computer. The WDT501-P has the same watchdog features but adds temperature monitoring...plus more.

Specifications**Time-Out**

Selectable from 10ms to 4800s

Clock

894.88625kHz, derived from color clock (14.31818MHz/16)

Relay Contact Rating

Max switching current 2A DC or AC, 30VA max

I/O Space

8 bytes

IRQ Selections

2-7, 10-12, 14, or 15

Operating Temperature

0° to 60 °C

Storage Temperature

-50° to 120 °C.

Humidity

10% to 90% RHNC

MTBF

WDT500-P: 100 years calculated

WDT501-P: 63 years calculated

Connector

DB25 female

Power Requirements

WDT500-P: +5VDC @ 125mA

WDT501-P: +5VDC @ 250mA

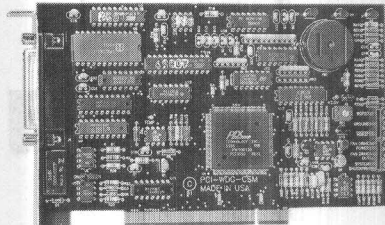
Ordering Guide

WDT500-P \$129

Basic card, manual, software

WDT501-P \$199

Card w/options software, manual

PCI Multifunction Watchdog Timer Card

Datasheet #1729

PCI-WDT500

- Software selectable timeout from 4 microseconds to over 30 minutes
- Relay output & reset line output
- Supports DOS, Windows 95/98/NT
- Optional temperature monitor/ alarm, fan speed detect, & buzzer plus more! (PCI-WDT501)

This multifunction card is designed for use with PCI-Bus computers. It continuously monitors critical PC functions. When a fault occurs, the card automatically generates outputs that can be used either to initiate corrective action or to generate alarms.

The Watchdog Timer offers excellent protection from CPU malfunctions at low cost. If your applications program is set up to communicate with the watchdog circuit at periodic intervals and this "prompt" is missed, the watchdog can be programmed to initiate a Reset (Reboot). If the reboot is successful, operation may be returned to the previous application program and, if the failure was temporary, proper operation is resumed. If, however, the failure is persistent, then the watchdog will continuously reset the computer.

Specifications**Time-out**

Software selectable from 4mSec to 2060 seconds

Clock

2.08333MHz, derived from computer clock (331/3MHz÷16).

Address Continuously mappable within 0000 to FFFF hex I/O range

Output Pulse Width

16mSec minimum

Relay Output

DPDT, Form C, max.

switching current 2A DC at 30W or 1.25A AC at 30VA max

I/O Space

64k

IRQ

Shared interrupts

Operating Temperature

0° to +60 °C

Storage Temperature

-50° to +120 °C

Humidity

10 to 90% RH, non-condensing

Connectors

DB25

MTBF

PCI-WDT500: 91.32-years

PCI-WDT501: 51.36-years

Power Requirements

+5VDC at 125mA

w/no options, 250mA with all options installed

Ordering Guide

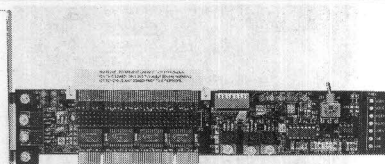
PCI-WDT500 \$175

Basic card manual, software

PCI-WDT501 \$259

Card w/options software manual

PCI & ISA Switched Extender Cards



Datasheet #1726

SMART Series

- Functions under program control if desired
- Bank switches allow selective signal isolation
- All voltages are current limited
- Swap board-under-test without turning off power

The SMART Series of extenders allows testing of boards in a PC without having to turn the power on and off to change boards. This eliminates repeated rebooting which speeds up testing. It also prolongs the system life including reduced wear and tear on hard disks. There are three methods to control the power on a SMART Extender: (1) the mechanical toggle switch, (2) external control signal, or (3) by software control.

There are four versions of the card, two PCI bus cards, (one for 5V and one for 3.3V), and two ISA versions. For the ISA versions, the SMART/200 is the same as the SMART/150 except it adds a breadboard area for user specific circuitry. An optional connector extender is available for the ISA and PCI versions to save wear and tear on the card's connector and bring connector to almost full height in PC in PCI modes

Specifications

Bus

PCI:
SMART/PCI-5 & SMART/PCI-3
ISA:
SMART/150 & SMART/200

Input Voltage Requirements

+5VDC @ 200mA
±12VDC @ 50mA each
Plus any additional current needed for the UUT

Output Ratings

+5VDC: Jumper selectable to 5A or 1A limit
+3.3VDC, +VIO & ±12VDC: 1A limit

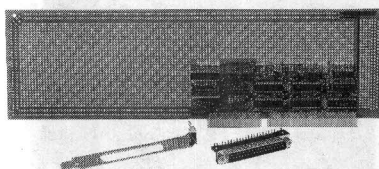
Output Voltage Drop

40mV drop for every 1A drawn for +5VDC,
+3.3VDC & VIO
30mV drop for every 1A drawn for +12VDC
30mV drop for every 100mA drawn for ±12VDC

Ordering Guide

SMART/PCI-5 \$349
5V & universal board, manual
SMART/PCI-3 \$345
3.3V & universal board, manual
SMART/150 \$299
ISA version, manual
SMART/200 \$349
ISA version with breadboard area, manual
MINIEXT \$39
Extended connector for ISA
MINIEXT/PCI-5 \$69
Extended connector for 5V PCI

Buffered Development Board



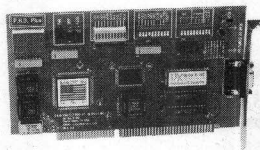
PB751-AT

- Prototype development board, full size 10-inch (254mm), plugs directly into the PC
- Buffered IC connections
- I/O connections on the board
- Ground and power planes are on both sides of the board
- I/O or memory mapped selection

Ordering Guide

PB751-AT \$85
Buffered development board

Advanced 16-Bit Diagnostic Card



Datasheet #1714

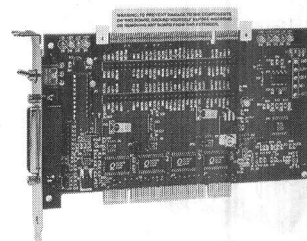
PHD/PLUS

- Full ISA Bus testing
- Complete DMA & interrupt testing
- Component-level diagnostics in 286/386/486 & Pentium® computers
- P.O.S.T. monitoring
- Supports newer motherboards with integrated Chipset designs

Ordering Guide

PHD/PLUS \$989
Board, ROMs, manual

PCI Active Extender Card



Datasheet #1704

PCIAX532

- 5VDC and 3.3VDC versions
- Provides hot swapping of UUT
- Extends test system life
- May be controlled via a parallel port or manually

Specifications

Bus

PCIAX532:
32-bit PCI, 5VDC key and universal
PCIAX332:
32-bit PCI, 3VDC key and universal

Input Requirement

+5VDC @ 200mA
±12VDC @ 50mA

Inputs

From PC bus or external input, configurable by jumpers per voltage

Output Ratings

+5VDC, Jumper selectable to 5A or 1A limit
+3.3VDC @ 2.5A
+VIO @ 1A
±12VDC @ 1A

Drop Across the Switches

40mV drop for every 1A drawn for +5V, +3.3V, and +VIO
30mV drop for every 1A drawn from the -12V
30mV drop for every 100mA drawn for +12V

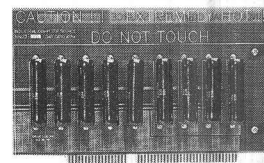
Size

6.8 x 4.5-inch (172.7 x 114.3mm)

Ordering Guide

PCIAX532 \$349
5VDC version, manual software, parallel interface, cable
PCIAX332 \$349
3.3VDC version, manual, software, parallel interface, cable

Power Supply Load Boards



10273-01B

- Provide minimum loading requirements
- Use for chassis troubleshooting
- 0.96A load on +12VDC
- 4A load on +5VDC

Ordering Guide

10273-01B \$79
ISA backplane load board

The Omnix Family of Products

Times change. The "industrial" computer of yesterday, does not meet the requirements of the sophisticated applications of today. So, we asked you what you need in a system. And listened. The Omnix family is the answer.

You said you need more flexibility: The modular design approach we took with Omnix allows us to offer more options to you than ever before. Base chassis are available in sizes from 1U to 6U and depths from 18 to 26 inches. Our new modular backplane allows you to specify the number and type of expansion slots. Add to this a wide variety of drive and power options, and you can be assured of finding the exact chassis that meets your needs. You can even have it custom painted, with your corporate logo in as little as 72 hours.

You said you need more power: Our modular power supply system can offer up to 1250W of N+1 power. And because it is modular, you can add more power supplies to your Omnix chassis if your application requirements change.

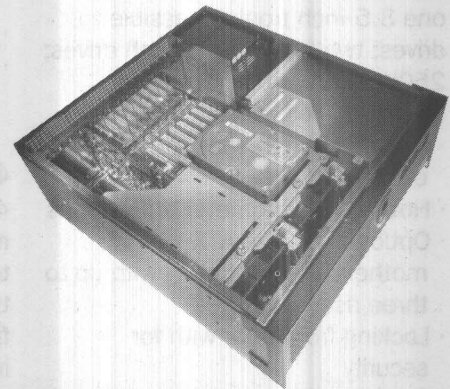
You said you need reliability: Hot-swap fans, next generation levels of shock, vibration and temperature protection, and new alarming and SNMP manageable remote monitoring options, insure that your system will stay up and running.

You said you need better value: With dramatically lower prices, a more robust feature set, and increased reliability than the previous generation of fault resilient computers, the Omnix family offers the highest values in business critical systems today.

You said you need it yesterday: While we can't quite do that, we will ship your build to order system solution to you within days of acceptance of your order. And, as you would expect from the industry leader, you receive the best pre-sales support in the industry, and 24 x 7 technical support if you have any questions after the sale.

We want to be your partner for business critical computing systems.

Problem solved.



Introducing the Omnix Product Family of Configurable Computers

100L Series

1U 23-inch; three slot transverse ISA/PCI backplane one 5.25-inch and one 3.5-inch front accessible drives; one internal 3.5-inch drive; 150W or 230W power supply

- Space efficient design
- Locking front door for security
- Perfect for fitting additional systems into limited existing space in a network closet or rack
- Up to forty units can fit in a standard six foot rack

200 Series

2U 18-inch; six slot transverse ISA/PCI backplane; two 5.25-inch and one 3.5-inch front accessible drives; two internal 3.5-inch drives; 250W-400W power supplies; 300W A/C redundant available

- Five half length slots for system expansion
- Hot swap tachometer output fans
- Optional full size ATX motherboard mounting with up to three riser cards
- Locking front door with for security
- Optional alarm and sensor board with LCD display; SNMP option for remote monitoring

200L Series

2U 23-inch; six slot ISA/PCI transverse backplane; two 5.25-inch and one 3.5-inch front accessible drives; five internal 3.5-inch drives; 250W-400W ATX power supplies; redundant power supply option

- Eight drive bays for data intensive applications
- Five full length slots for system expansion
- Hot swap tachometer output fans
- Optional full size ATX motherboard mounting
- Locking front door with for security
- Optional alarm and sensor board with LCD display; SNMP option for remote monitoring

400 Series

4U 18-inch; nine to fifteen slot modular ISA/PCI backplane; multiple drive options with up to three 5.25-inch, one 3.5-inch front accessible drives and two internal 3.5-inch drives; 250W-400W ATX power supplies; redundant power supply option

- Vertical drive bay option for fourteen full length slots
- Mezzanine drive bay holds two 3.5-inch internal drives and doubles as single board computer hold down bar
- Optional full size ATX motherboard mounting
- Hot swap tachometer output fans
- Optional alarm and sensor board with LCD display; SNMP option for remote monitoring

400L Series

4U 26-inch; nine to twenty slot modular ISA/PCI backplane; up to ten drives total consisting of up to three 5.25-inch, one 3.5-inch front accessible drives and three internal 3.5-inch drives; 300W-400W ATX power supplies or front mountings for up to six modular power supplies

- Most expandable chassis in the Omnix line
- Optional full sized or server sized ATX motherboard mounting
- Features our new modular N+1 redundant power supply system, offering up to 1250W of N+1 redundant power or 1500W singular. Power supplies available in 115/230 VAC or 48 VDC
- Mezzanine drive bay holds three 3.5-inch internal drives and doubles as single board computer hold down bar
- Hot swap tachometer output fans
- Optional alarm and sensor board with LCD display; SNMP option for remote monitoring

500 Series

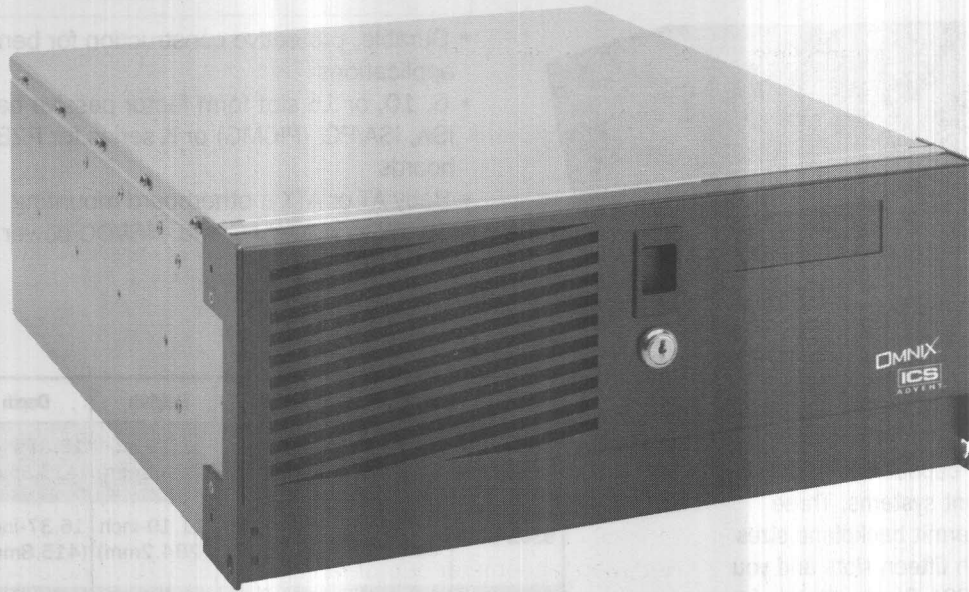
5U 18-inch; nine to twenty slot modular ISA/PCI backplane; wide range of drive and power supply options with up to six front accessible drives; 300W-400W ATX power supplies or up to three modular power supplies

- Most flexible chassis in the Omnix line
- Optional full sized ATX motherboard mounting
- Features our new modular N+1 redundant power supply system, offering up to 500W of N+1 redundant power or 750W singular. Power supplies available in 115/230 VAC or 48VDC
- Vertical drive bay option for fourteen full length slots in fifteen slot systems
- Up to six drive mountings and up to four 5.25-inch and three 3.5-inch drives front accessible
- Hot swap tachometer output fans
- Optional alarm and sensor board with LCD display; SNMP option for remote monitoring

600 Series

6U 18-inch; nine to twenty slot modular ISA/PCI backplane; choice of four 5.25-inch drives or two 5.25-inch and five 3.5-inch drives; 300W-400W ATX power supplies or rear mountings for up to four modular power supplies

- Features our new modular N+1 redundant power supply system, offering up to 750W of N+1 redundant power or 1000W singular. Power supplies available in 115/230 VAC or 48VDC
- Hot swap tachometer output fans
- Optional alarm and sensor board with LCD display; SNMP option for remote monitoring



PERFORMANCE	MID RANGE	ENTRY LEVEL
2 ISA, & 11 PCI slots available**	5 ISA, & 9 PCI available slots**	6 PCI slots available
Aviant Dual processor SBC, BX chipset	Endeavor Plus SBC, 810E chipset	Intel 810E motherboard
Two Intel® Pentium® III 850MHz	Intel Pentium III 866MHz	Intel Pentium III 600MHz
256MB SDRAM	128MB SDRAM	64MB SDRAM
Built-in AGP graphics	Built-in AGP graphics	Built-in AGP graphics
3.5-inch floppy	3.5-inch floppy	3.5-inch floppy
36GB Quantum HD SCSI	20GB Quantum HD	15GB Quantum HD
Four available drive bays	Four available drive bays	Four available drive bays
12X/4X/4X or greater CD-RW ATAPI	32X or greater CD-ROM ATAPI	32X or greater CD-ROM ATAPI
Adaptec 29160 Ultra160	Built-in 10/100 Ethernet	Built-in 10/100 Ethernet
Windows 2000	Windows Millennium	Windows Millennium
104-key keyboard	104-key keyboard	104-key keyboard
Microsoft 3 button wheel mouse	Microsoft 3 button wheel mouse	Microsoft 3 button wheel mouse

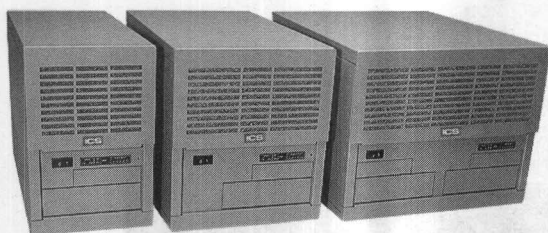
Model	Power Supply	Systems Express Code	Model	Power Supply	Systems Express Code	Model	Power Supply	Systems Express Code
400-H53	400W A/C	1101-022 1101-024 (w/alarm board)	400-H53	300W A/C	1101-012 1101-014 (w/alarm board)	4ATX-H64	300W A/C	1106-012 1106-014 (w/alarm board)
400R-H53	300W A/C redundant	1102-022 1102-024 (w/alarm board)	400R-H53	300W A/C redundant	1102-012 1102-014 (w/alarm board)	4ATXR-H64	300W A/C redundant	1105-012 1105-014 (w/alarm board)

How to use Systems Express Codes online:

1. Log on to www.icsadvent.com
2. Enter the Systems Express Code of the system you desire and click "Configure"
3. Continue on to checkout or customize options to meet your exact needs

**Systems
Express**

9301 Series & OEMC Family



Datasheet #1623

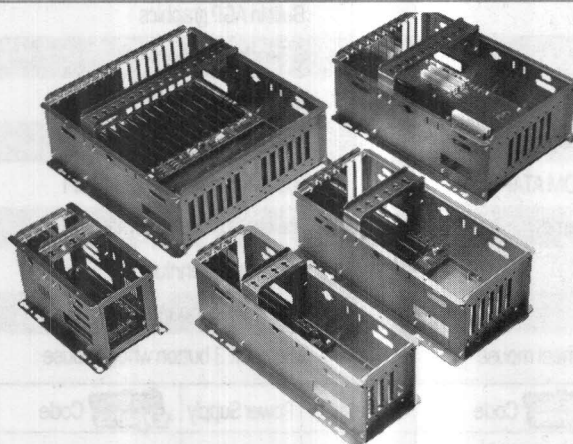


9301 Series

- Durable, protective construction for benchtop applications
- 6, 10, or 15 slot form factor passive backplanes in ISA, ISA/PCI (PICMG) or K series for P2BX feature boards
- Baby AT or ATX motherboard mounting
- 250W to 400W AC and -48VDC power options

The 9301 Series benchtop computer chassis combines small footprints with expansion capabilities equal to most rack mount systems. Three chassis sizes permit backplane sizes from six through fifteen slots and you may select a 9301 Series chassis for your Baby-AT or ATX motherboard. Designed for a rugged environment, the 9301 Series is a solid choice for industrial applications and use on a factory floor.

Models	Configuration	Width	Height	Depth	Weight
9301-06	6-slot backplane	7.3-inch (185mm)	11.19-inch (284.2mm)	16.37-inch (415.8mm)	21.0lbs (9.26kg)
9301-8MB	Baby-AT motherboard	9.88-inch (251mm)	11.19-inch (284.2mm)	16.37-inch (415.8mm)	25.0lbs (11.34kg)
9301-10	10-slot backplane	9.88-inch (251mm)	11.19-inch (284.2mm)	16.37-inch (415.8mm)	25.0lbs (11.34kg)
9301-15	15-slot backplane	14-inch (356mm)	11.19-inch (284.2mm)	16.37-inch (415.8mm)	32.0lbs (14.51kg)
9301-ATX	ATX motherboard	14-inch (356mm)	11.19-inch (284.2mm)	16.37-inch (415.8mm)	32.0lbs (14.51kg)



Datasheet #1203

OEMC Family

- 4, 6, 10, or 15 slot form factor backplanes in ISA and ISA/PCI
- Simple, durable, steel construction
- Optional AC or DC input power supply modules
- Optional drive cage

Chassis Dimensions: Inches (millimeters)

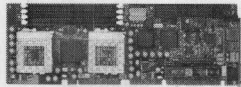
Refer to the Dimensional Outlines for X, Y, Z Specification

Model	Height	Width	Depth
OEMC-04	6.5-inch (165mm)	4.00-inch (101.6mm)	14.58-inch (370mm)
OEMC-04S	6.5-inch (165mm)	4.00-inch (101.6mm)	8.75-inch (222mm)
OEMC-06	6.5-inch (165mm)	5.78-inch (147mm)	14.58-inch (370mm)
OEMC-06S	6.5-inch (165mm)	5.78-inch (147mm)	8.75-inch (222mm)
OEMC-10/10P	6.5-inch (165mm)	8.98-inch (228.1mm)	14.58-inch (370mm)
OEMC-15/15P	6.5-inch (165mm)	12.98-inch (329.7mm)	14.58-inch (370mm)
OEMC-8MB	6.5-inch (165mm)	8.98-inch (228.1mm)	14.58-inch (370mm)
OEMC-ATX	6.5-inch (165mm)	12.98-inch (329.7mm)	14.58-inch (370mm)

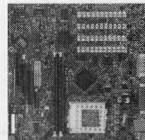
NOTE: All OEMC Chassis are 6.5-inch (165mm) in height.

Single Board Computer & Motherboard Features Overview

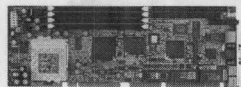
Model	Description	Pentium III FCPGA	Celeron FCPGA	Celeron PPGA	Pentium MMX	Chipset	Video	Video Controller	Ethernet	SCSI	SCSI Controller	Max Transfer Rate	Floppy and IDE	Universal Serial Bus	Form Factor
Single Board Computers															
SBC-DBX-VE	Aviant Dual BX	Y	-	-	-	440BX	Y	C&T 69000	Y	-			Y	Y	PICMG SBC
SBC-SBX-VE	Aviant Single BX	Y	Y	Y	-	440BX	Y	C&T 69000	Y	-			Y	Y	PICMG SBC
SBC-HSBX-V	Aviant Half-size BX	Y	Y	Y	-	440BX	Y	C&T 69000	-	-			Y	Y	Half-size SBC
SBC-SCPIII-VES	Endeavor Plus with video, Ethernet & SCSI	Y	Y	Y	-	810E	Y	810E integrated	Y	Y	Adaptec 7892	160	Y	Y	PICMG SBC
SBC-SPCIII-VE	Endeavor Plus with video and Ethernet	Y	Y	Y	-	810E	Y	810E integrated	Y	-			Y	Y	PICMG SBC
SBC-SCPIII-V	Endeavor Plus with video	Y	Y	Y	-	810E	Y	810E integrated	-	-			Y	Y	PICMG SBC
Motherboards															
MBATX-810E-VEA	Pentium III/Celeron 810E ATX Motherboard	Y	Y	Y	-	810E	Y	810E integrated	-	-			Y	Y	MicroATX
MBATX-S1857	Pentium III/Celeron 440BX ATX Motherboard	Y	Y	Y	-	440BX	-	AGP Port	-	-			Y	Y	ATX
MBATX-SBX6I-V	Pentium III/Celeron 440BX ISA ATX Motherboard	Y	Y	Y	-	440BX	Y	C&T 69000	-	-			Y	Y	ATX
586MBIX	Pentium 430TX ISA ATX Motherboard	Y	-	-	Y	430TX	Y	S3 Trio 64V2	-	-			Y	No	ATX

The AVIANT DUAL BX Single Board Computer

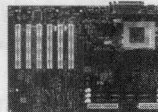
SBC-DBX-VE \$1095
Aviant Dual BX Pentium III single board computer with video and ethernet

Pentium® III/Celeron™ 810E ATX Motherboard

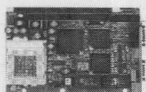
MBATX-810E-VEA \$259
Pentium III/Celeron BX 810E ATX motherboard

The AVIANT BX Single Board Computer

SBC-SBX-VE \$795
Aviant BX Pentium II/Celeron single board computer with video and ethernet

Pentium® III/Celeron™ BX PCI Motherboard

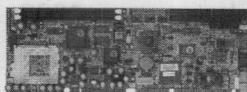
MBATX - S1857 \$189
Pentium III/Celeron BX PCI motherboard

The AVIANT HALF-SIZE BX Single Board Computer

SBC-HSBX-V \$595
Aviant Half-size BX Celeron single board computer with video

Pentium® III/Celeron™ BX ISA Motherboard

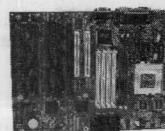
MBATX-SBX6I-V \$369
Pentium III/Celeron BX ISA motherboard

The ENDEAVOR PLUS™ Single Board Computer

SBC-SCPIII-VES \$1195
Endeavor Plus 810E Pentium III/Celeron single board computer w/video, ethernet, SCSI

SBC-SCPIII-VE \$795
Endeavor Plus 810E Pentium III/Celeron single board computer w/video, ethernet

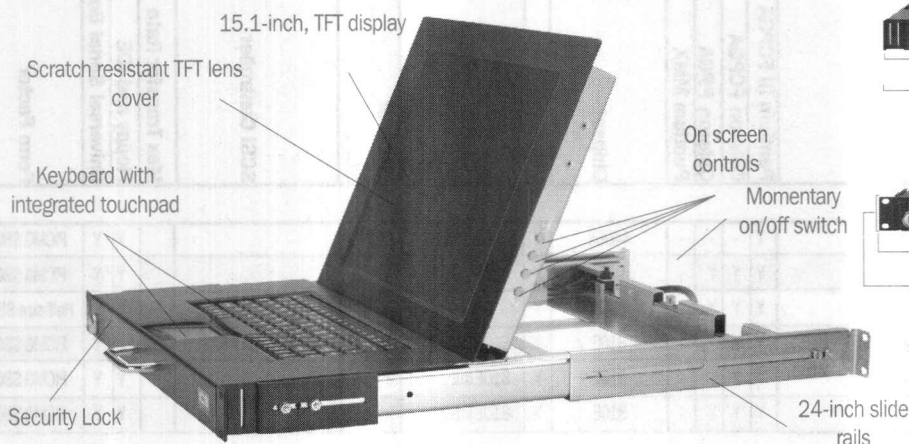
SBC-SCPIII-V \$695
Endeavor Plus 810E Pentium III/Celeron single board computer w/video

Pentium ATX Motherboard

586MBIX \$289
Pentium ATX motherboard

Monitor Keyboard Drawer & Keyboards

1U Flip-Top Monitor

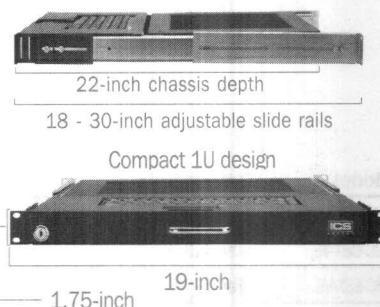


Datasheet #1860

- 1U (1.75-inch) high
- 15.1-inch, TFT, active matrix monitor
- 88-key keyboard with integrated touchpad
- PS/2 keyboard/mouse connectors
- 1024x768 resolution at 16M colors
- 115/230VAC auto switching power with universal IEC plug
- Key lock security
- Dimensions (W x H x D) 19 x 1.75 x 22-inch (495.3 x 483.6 x 584.2mm)

RMX-1U15TFT

Side view - closed



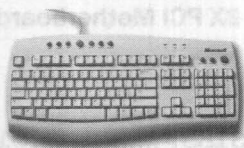
Ordering Guide

RMX-1U15TFT \$2499
1U flip top monitor/keyboard drawer, black

Accessories

F2N018 \$5
Adapts PS/2 keyboard to AT connector

Microsoft Internet Keyboard



Datasheet #1793



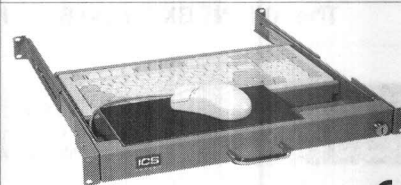
Smallfoot Print Keyboard



Datasheet #1250



Rack Mounted Keyboard



Datasheet #1482



INTERNETKB

(available only with system purchase)

- Internet hot keys
- Email hot keys
- Custom hot keys
- Sleep hot key

Ordering Guide

INTERNETKB \$29
Microsoft® Internet keyboard PS/2 connector
F2N018 \$5
Adapts PS/2 keyboard to AT connector

KB3/A-PS2

- Small footprint 104-key
- PS/2 connector
- IBM AT compatible

Ordering Guide

KB3/A-PS2 \$89
Small footprint 104-key keyboard, PS/2 connector
Accessory
KB3/A-SKIN \$19
Protective overlay film for KB3/A
F2N018 \$5
Adapts PS/2 keyboard to AT connector

6531-KB3M

- 101-key AT keyboard includes AT to PS/2 adaptor)
- Mouse pad & storage compartment
- Keyboard usable without lifting out of the drawer
- Rack mount 1.75-inch high

Ordering Guide

6531-KB3M, gray
6531BKB3M, black \$309
Keyboard and slide assembly, mouse not included
Accessory
KB3/A-SKIN \$19
Protective overlay film for 6531-KB3M keyboard



System Integration

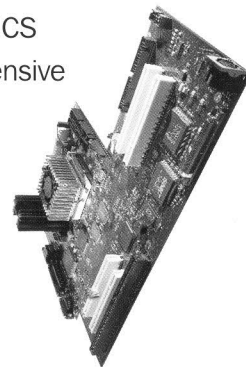
ICS Advent is not just computers. For years, ICS Advent has been providing platform integration services for some of the world's largest and fastest growing communications systems suppliers. ICS Advent's platform integration services manage all of the 'pre-competitive' aspects of configuring and integrating open communications systems. By working with us, our partners are able to focus more of their valuable resources on their core value-add: developing software, deploying new networks, or managing uptime to support new network and communications services.

ICS Advent's platform integration experience in open communications systems markets is unique in the high availability server industry.

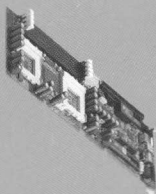


Custom Products

Whether you have embedded or high availability rack mount system requirements, ICS Advent's custom product design services can help you develop a solution that works. Our custom products team specializes in specifying, engineering, manufacturing and integrating solutions that augment our Omnix product family, from point solutions in health care automation to OEM telecommunications infrastructure. We can also provide the kind of turnaround you never thought possible – in many cases delivering a prototype just weeks from the time we reach a design specification agreement with you. Visit our Web site or call us today to find out how easy it is to partner with ICS Advent as your comprehensive design source.



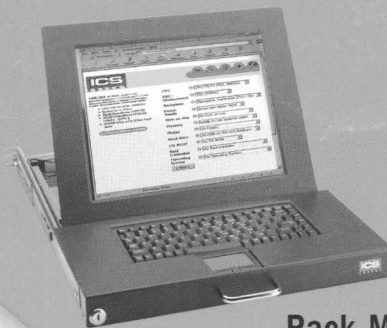
**Single Board
Computers &
Motherboards**



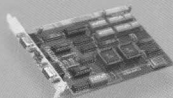
**Omnix Systems
& Chassis**



**Rack Mount Monitors
& Keyboards**

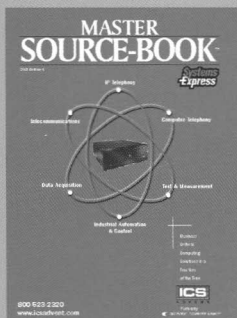
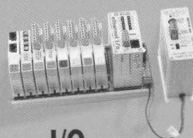


Communications



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Systems Express Master

Source-Book™ includes complete
sections of the following:

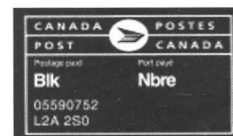
- Omnix Pre-configured Systems
- Chassis
- Single Board Computers & Motherboards
- Embedded Controllers & Node Chassis
- Hard, Floppy & Removable Drives
- Drive Controllers & Video Cards
- Monitors & Keyboards



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